STORAGE

PROCEEDINGS

Of the Fifth Bi-Annual Meeting of the

Canadian Dental Association

and the Twenty-first Annual Meeting of the

Ontario Dental Society

HELD IN THE
ROYAL COLLEGE OF DENTAL SURGEONS
TORONTO, ONTARIO

Tuesday, Wednesday, Thursday, Friday
May 31, June 1, 2 and 3, 1910.

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DOMINION DENTAL JOURNAL
3 COLLEGE STREET
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OFFICERS

Canadian Dental Association

1910-1911

Hon. President, Jas. M. Magee, St. John, N.B.
President, A. E. Webster, Toronto, Ont.
Vice-President, W. D. Cowan, Regina, Sask.
Secretary Treas., J. G. Gendreau, Montreal, Que.

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Joint Executive Committe—C. H. Clarkson, Chairman ; Geo. W. Grieve, Secretary, 2 Bloor St. East, Toronto, Ont.

Program Committee--W. G. L. Spaulding, Chairman, Yonge Street Arcade ; W. Seccombe ; R. G. McLaughlin ; W. C. Trotter ; H. E. Eaton ; J. B. Willmott.

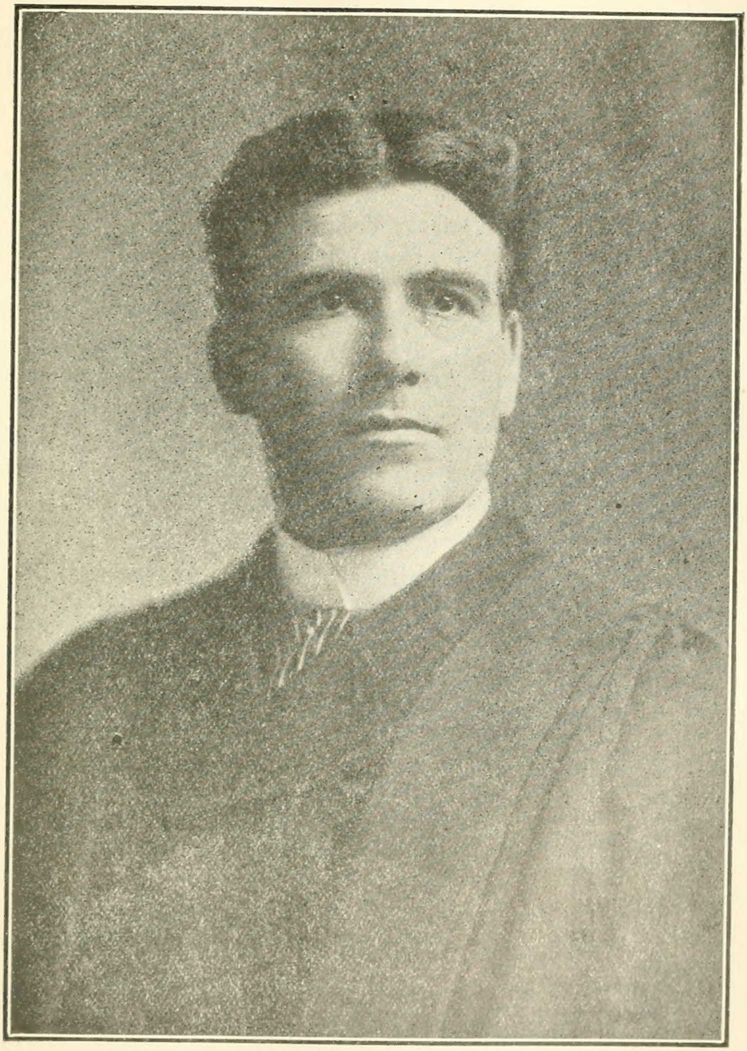
Entertainment Committee—A. J. McDonagh, Chairman ; F. C. Husband ; Geo. Gow ; A.W.Thornton ; G. S. Caesar ; R. .J Reade.

Clinic Committee—C. G. Scott, Chairman ; E. F. Arnold ; F. N. Badgley ; J. A. Bothwell.

Transportation Committee—F. R. Mallory, Chairman ; J. P. McLachlan.

Exhibit Committee—W. E. Willmott, Chairman; W H. Doherty.

Publicity Committee—C. H. Clarkson, Chairman ; C. A. Kennedy ; Geo. W. Grieve, Secretary.



A. E. WEBSTER, M.D., D.D.S., L.D.S., TORONTO, CAN.
President of the Canadian Dental Association, 1910.

OFFICERS

Ontario Dental Society

1910-1911

President—H. A. Clark, Toronto, Ont.
Vice-Pres.—J. Irwin, Collingwood, Ont.
Secretary—W. H. Doherty, Toronto, Ont.
Treasurer—C. A. Kennedy, Toronto, Ont.

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Publicity Committee—C. H. Clarkson, Chairman ; C. A. Kennedy; Geo. W. Grieve, Secretary.

TREASURER'S REPORT.

ABSTRACT OF RECEIPTS AND DISBURSEMENTS OF THE JOINT CANADIAN AND ONTARIO DENTAL SOCIETIES' CONVENTION FOR THE YEAR 1910.

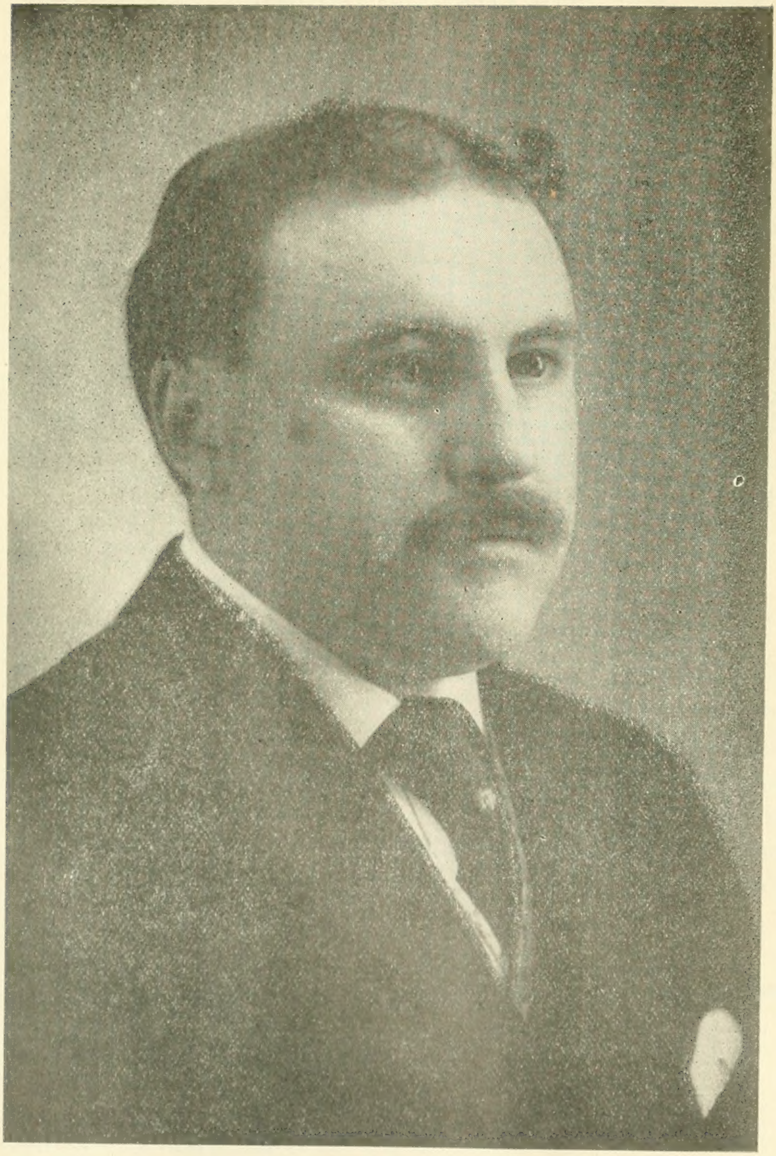
Canadian Dental Association	$100 00
Ontario Dental Society	100 00
Fees from Members	938 50
Grant from City of Toronto	300 00
Publicity Committee (Refund)	2 00
Exhibit Committee	190 50
Sale of Boat Tickets	82 00
Sundry other Receipts	3 97
Interest on Deposits	35
	$1,717 32

DISBURSEMENTS.

Steamboat Tickets	$420 00
Refreshments, etc.	323 25
Expenses of Committees	155 40
Expenses of Demonstration	95 00
Printing, Stationery, etc.	155 25
Stenographer and other assistance	97 90
Sundry Petty Cash Disbursements	67 24
	$1,314 04
Cash in Bank	403 28
	$1,717 32

C. Angus Kennedy,
Treas. C.D.A. and O.D.S. Joint Convention.

Audited and found correct.
W. E. Willmott.



H. A. Clark, D.D.S., L.D.S., Brockville, Ont.
President of the Ontario Dental Society, 1910.

Papers and Discussions.

PRESIDENT'S ADDRESS OF THE CANADIAN DENTAL ASSOCIATION.

A. E. Webster, M.D., D.D.S., L.D.S., Toronto, Can.

Gentlemen:—This is the fifth meeting of the Canadian Dental Association. It is fitting that an organization of the importance of the Canadian Dental Association should hold its meeting in this magnificinet building, dedicated to the teaching of Dentistry. This building is only one of the evidences of progress in dentistry, since our meeting in Ottawa, two years ago. Since that time the Maritime Dental College has begun to teach dentistry in Halifax. A corps of teachers in that province, which has been the school house of the Dominion, has set themselves to educate dentists for Eastern Canada. In Montreal, McGill University has made arrangements with the Montreal General Hospital to have its students taught dental practice as one of the departments of the hospital. In the same city, Laval University, has erected a special building for the department of Dentistry. From Winnipeg comes the news that when the University of Manitoba is finally established, provision will be made for dentistry.

At the Ottawa meeting, Dr. G. K. Thomson, read a paper on school dentistry, and at the close of the meeting the Canadian Oral Prophylactic Association was appointed to do what it could to promote dental education among the people. The report from this Committee, and that from the Educational Committee of the Ontario Dental Society, will no doubt surprise many of you. The value of dentistry in the preservation of the health of the nation is recognized to-day as never before. Departments of Education and Agriculture are seeking the knowledge of the dentist. In recognition of the value of the dentists' services, and what is to be gained from such a convention as this, the City Council of Toronto has made a grant of three hundred dollars ($300.00), to help defray the expenses.

The profession has been so taken with the idea of preventive dentistry, that the programme of this meeting is largely in that direction.

Prevention of infection and contagion in dental practise is not always what it might be. In some cases ordinary cleanliness is not observed. While in others, much intelligent effort is expended. While in some rare cases the maximum of care, effort, and intelligence is not assured of immunity to infection or contagion. It is a fortunate thing for the human race, that there are so many requirements for infection, before it will occur. This is especially true for those who have anything to do with the treatment of disease and the maintenance of health.

Before life may start and be maintained, there must be the initial germ; there must be a proper temperature, there must be moisture, there must be suitable pabulum. If an organism be given all these conditions, and does not mature, it will die. As is exemplified in the production of grain. All the conditions mentioned being favorable, life will attain its highest perfection which is to reproduce itself in its own likness. It has been found that organisms, which have not the conditions favorable for their development may remain dormant for months or even years, and suddenly spring into life as soon as conditions are favorable. It is also noteworthy that some organisms which find development difficult sporulate. The spores are much more resistant than the organisms. Even boiling will not destroy many varieties of spores.

Life is influenced by its environment. If any of the requirements of life are gradually modified—not being sufficient to destroy—new characteristics may be developed. This micro-organisms, which were at one time very virulent, may become benign, vice versa. The first cases of contagious disease are often more virulent than those later in an epidemic.

The most susceptible persons get the disease first, and the organisms become less vircil, because of the resistance of those having the disease. Those persons who do not take a given disease readily, are said to be immune to that disease. An attack of many of the diseases, so raises the resistance that the person is immune from another attack of that disease for years. Immunity may be raised by artificial means, before, or during an attack, e.g. diphtheria, typhoid, staphylococcus and streptococcus infections.

It is clear then, that a person who is resistant enough to a given organism, will either destroy it altogether or force it to grow under such adverse conditions that it will change its characteristics. Thus we are immune to our own micro-organisms. We may have streptococci in our mouths, and though we force these germs into the vital tissues, no infection will occur. The resistance has been raised and the virulence of the organisms has been lowered. Thus little is to be feared from infections from instruments, which were sterile at the beginning of an operation, and have become infected from the patient in the course of the operation. It must be remembered that immunity is often local. We may resist infections in the mouth from organisms, which are there, but if these organisms were injected into the hand or other parts of the body, infection would occur.

While we may be resistant to our own organisms, these same organisms may be very virulent to another. Thus instruments which become infected in one operation are a vital source of danger to another, unless sterilized.

All bacteria are not disease producing, and if they cause disease it is only an incident in their lives. It is not the physical presence of the bacteria which causes disease, but either the enzyme or waste products, which cause the local or general disturbance.

There are many other principles of organic life, which might be interesting, but enough has been said to point out that life developes characteristics in accordance with the surrounding conditions, and unless these conditions are favorable, life will not develop at all. Upon this principle depends the whole idea of present day agriculture, and the maintenance of health by the prevention of the growth of organisms. The whole idea is well illustrated by the German farmer, when asked how he got rid of Canadian thistles from his fields. He said: "I never let them into the fields." Then the way to treat decay of the teeth is to never let it begin. The way to treat pyorrhea, is never to let it begin. The way to treat an alveolar abscess from an infected canal is never to let it become infected. And though this is almost impossible in some cases, yet if the canal is dry and no suitable pabulum be present no infection will occur. The way to treat infection from the hands or instruments is not to allow the tissues to become infected from them. They way to prevent infection around a filling, is not to allow any infection to remain in the cavity before the filling is inserted.

Then the chief thing in dental practice to prevent infection is to make the conditions for the growth of micro-organic life unfavorable. Since most organisms are occasionally or often present dependence in their non-development must be put in making conditions unfavorable by having no dust, no carpets, no absorbing drapings or furniture about a dental office. No unclean instruments, sweepings or wet plaster left about to attract flies or organic growth. If possible, everything about an office should be kept dry. Cleanness and dryness are the main hope. Since organisms will always be present, but in an attenuated conditions, if cleanliness abounds, it is necessary to sterilize. The means of doing this depends upon first of all mechanical cleanliness; second, unusual temperatures, and thirdly, poisons. High temperatures are usually the most certain, but not always so. Do not depend upon poisons for the disinfection of instruments, which are recommended for the so-called disinfecting of wounds. No preparation which may be used as a mouth wash, or upon vital tissues will destroy micro-organic life. If it did, it would be unsafe to use on vital tissues. The virtue of a disinfectant or sterilizing agent depends upon its ability to destroy life, and this will destroy vital tissues. I wish to press this home with all the force I may, because I have seen such preparations as are commonly used for mouth washes used for disinfecting instruments. I have seen infected instruments dipped into borolyptal or Pasterine, and wiped off within thirty seconds, and used in operations on vital tissues. It is well that the human tissues are not always favorable to the growth of micro-organisms, or there would be many sad mishaps in surgery. This is what might be called unwise effort in disinfection. There is no solution so satisfactory for disinfecting dental instruments as formaldehyde in water 3 to 10% with borax added to prevent the rusting of the instruments. No method of sterilization should be depended upon unless it has been shown by one in whom you have confidence that it will do what you desire.

For present information and future record, it will not be uninteresting for me to explain to you why the meeting of the Canadian Dental Association is this year combined with the Ontario Dental Society. On other similar occasions the local society has given away to the national organization. This, in the opinion of your President, would have been a mistake at this time. The Ontario Society has reached such a magnitude and has so many committees and sub-organizations, whose reports must be made annually that there would be a loss of continuity in the work of the society, if it should suspend for a year. There are other reasons of equal importance, which time does not permit to set before you.

The arrangement between the two Societies is as follows:—

The two Societies shall equally bear the expenses of the meeting. Each Society has placed a certain amount of money at the disposal of the new executive, and when the meeting is closed the deficit or profit will be shared alike. Your President having the authority to appoint a local executive for the meeting, did so and these appointees meet with the local executive of the Ontario Dental Society, and struck the several Committees which have had this meeting in charge. Dr. C. A. Kennedy, the Treasurer of the Ontario Society, has kindly consented to act as Treasurer of this meeting. Each Secretary will make his own minutes.

This method of organization has proven to be very saticfactory, and the results, will, I am confident, justify the anticipation of the largest and most profitable meeting ever held by either Association. Each Committee, and especially the Chairmen are to be congratulated for the excellent programmes which they have prepared. No President ever worked with the various Committees of a meeting of this kind with greater satisfaction.

In fact, he felt as if all the responsibility had been removed. He desires now to express to them his personal thanks for preparing such a magnificent programme. The Society is to be congratulated upon having such painstaking and experienced members on its Committees.

MILLER MEMORIAL.

For some time the Miller Memorial fund has been before the Profession. In Europe, and Australia especially, a large sum has been raised by subscription. In America, the fund has not, up to now, received as much attention from the Profession as its merits should demand. In Canada, no organized effort has yet been made to assist in this meritorious work. I would suggest that this matter be discussed at this time, and an effort be made to assist in making a fund which will perpetuate the memory and continue the work of the Profession's most noted scientist.

CONSERVATION COMMISSION.

The Conservation Commission, recently appointed by the Dominion Government, has a department of public health. The scope of the work which they propose to take up, as set forth in their first report, will naturally include the conservation of the human teeth. They perhaps do not now fully appreciate the value of good teeth in the conservation of the public health, but it is the duty of this body to at once, and put this matter before them. The Commission could perhaps do more to conserve the public health along the lines of oral hygiene, than in many other directions which they might follow. I would suggest that this matter be discussed, and the President appoint a Committee to take such action as in their opinion will do most to interest the Commission in this department of public health.

GIFTS IN DENTISTRY.

In England, Germany and the United States, large gifts have been made towards assisting in the care of the teeth of the poor and middle classes. The most noteworthy of these is a gift of $1,000,000 by an Englishman, whose name is not given. The fund is not to be used for caring for the teeth of the poor only, which the municipalities should look after, but for assisting the middle classes to have all the advantages in the care of the mouth that are enjoyed by the rich. In Canada, where all but the very few can afford to have the advantages of skilled dentistry, such a donation could be used to great advantage in dental educational matters. As less than seventy-five per cent. of the people in Canada consult a dentist, though fully ninety per cent. or more would live longer, and enjoy life more, if they had a better knowledge of the relation of the condition of the mouth to the general health. If the members of our Profession would interest themselves among their wealthy friends, there is no doubt but a sufficient gift could be obtained to endow departments of original research in dentistry and dental education of the public, which would bring more real happiness, good health, good morals, and good citizenship to the people of the Dominion than many of the large gifts which have for their purpose heaping up stone, mortar and brick, as a monument to the donor. The advantages of such a gift would be seen in the beauty, comfort and happiness of the people, hence little observed by the thoughtless. Any wealthy man in Canada could be made to see the value of such a gift, if some member of the Profession took the pains to explain the situation to him. I would suggest that the individual members think this matter over.

PRESIDENT'S ADDRESS OF THE ONTARIO DENTAL SOCIETY.

H. A. CLARK, D.D.S., BROCKVILLE, ONT.

GENTLEMEN:—On behalf of the Ontario Dental Association, I wish to express the pleasure it gives us in meeting with the members of the Canadian Dental Association.

We trust that each and every member will go away from this meeting feeling that his time has not been lost, but that he has received new ideas, and will be able to go back to his work feeling better prepared to perform his professional work than ever before.

This meeting gives many of us our first opportunity of inspecting our new college, which has been recently erected at a very great cost, and we are glad to be able to state that it is second to none on this continent.

Before offering the few suggestions, which have occurred to me during the year, I wish to thank my fellow officers and the members of the different committees who have so ably performed their work. Whatever success, which may have been attained at this meeting is wholly due to them, and the credit is their's alone. It is not my intention to give you any lengthy discussion on the scientific principles of Dentistry, for such will be taken up by the able men, whom we are fortunate enough to have with us at this time; but I wish particularly to mention a few facts, which must necessarily appeal to each, and every member of this Association and the profession of dentistry as a whole.

I wish, first to give a few moments to the subject of the examination of school children's teeth. This, has no doubt been brought up before, but to my mind nothing is of so much vital importance, not alone to the dentist but for the welfare of the community at large, from the standpoint of health and hygiene.

Every one of us can see in our daily practice, evidences of the lamentable condition that obtains among the children, whose mouths we have to examine, this being particularly true of the children of the poorer classes.

Such a condition lessens their mental and physical capacity, making them less capable and able of application and comprehension: poor students and therefore less desirable prospective citizens of their respective communities, to say nothing of the danger of infection and contagion to other children, who are compelled to come in contact with them.

Too much pressure cannot be brought to bear on our town, city, provincial and federal governments, in order that they may see this matter in the same light as the medical and dental professions view it. Some concerted move should be made by our societies to bring about some intelligent action, whereby the children in the schools should receive better dental instruction, and an oral inspection, that their parents may become enlightened, and thus know the true condition that exists in the mouths of their children, particularly those between the ages of six and twelve years.

The responsibility rests with us as a profession, a responsibility, which we should not shirk, not only as a profession, but as good citizens of the community, in which we live.

We must thank the Canadian Oral Prophylactic Society for the action they have taken in preparing pamphlets, and distributing same to the teachers and professions of the Province of Ontario. They have labored hard, and have given generously of their time to advance the general knowledge of dentistry with the masses.

While the necessity of the care and attention of the teeth pertains to the general education of the public as a whole, nevertheless, when all this is accomplished, and we have inspection of childrens' teeth at regular intervals, we have something more than this that will require a great deal of thought and consideration.

Let us assume that we arrive at the stage when inspection is regularly made and reported, it will be found that possibly two thirds of the parents of the children will be financially able to afford the expense of dental attention, while the remaining one third are not.

What is to be done? Where are they to receive proper professional treatment? Who is to pay for it?

These are questions hard to answer. They require a great deal of consideration, and I think it is for us, as a professional body, to grapple with the problem, and find a solution if possible.

The people in this country, who are unable to pay proper fees for dental work comprise a great number.

We, in Ontario, know of the good work done by Dr. J. G.

Adams, of this city some years ago, but we cannot afford to give up so much of our time, as the practice of dentistry is most arduous. A Physician ca nmake a dozen or more calls and prescribe for patients, while we are doing a simple operation. The ordinary charitable work therefore, is not so great a tax upon the time of the medical profession as upon the dental.

Hospitals are provided for the sick, and the poor are treated free. Many of these cases no doubt are directly traceable to improper mastication, and yet we go on from day to day without any thought or attempt to remove the cause. What about the conditions in our government institutions, particularly our asylums? The patients whose relatives are financially able to pay for treatment (provided they are well enough to be permitted out with an attendant), may receive proper treatment, but the rest have to be satisfied with the physician extracting the teeth, one by one as they cause trouble, until they have nothing left, with which to masticate. Then what happens? They are forced to bolt their food as best they can, and nothing more is said or done.

Have any of you ever visited one of these institutions, and observed the condition of the teeth of the inmates? A glance in passing through is all that is required to convince you that there is something lacking, something radically wrong with the system prevailing in these places; and it is high time that the Government should be aroused to the fact that a dentist should be employed in every institution. This would no doubt be welcomed by the medical superintendents and physicians in charge, and some steps should immediately be taken to overcome this state of affairs.

Now with reference to the poorer classes of the general public, how are we to arrange for their treatment?

Could we establish a dental infirmary in conenction with our hospitals? The only objections that I can see to this, are first, that we might find other than charity patients taking advantage of this; and secondly, every community has not such an institution as a hospital.

Could we get sufficient aid from our governing bodies, such as municipal councils, and provincial governments? Could we invite the government's consideration to apportioning a yearly sum from the succession duties received, already being devoted to philanthropic and charitable purposes. Could we solicit bequests, as is done for other charitable work?

I think, this is a matter that should be taken up with our governments, both federal and provincial, and further helped, if necessary, by the governing bodies of each community.

In bringing this matter before you, I hope that some action will be taken so that in the near future we may have compulsory examination of teeth in schools, and that there will be an office or infirmary for the poor to receive proper treatment.

In conclusion, if the importance of this subject sufficiently commends itself to your consideration, I would like the privilege of naming a committee to take the matter up, with a view to devising best ways and means of arriving at some practical modus operandi of interesting the governments, and of accomplishing the results aimed at.

DISCUSSION.

Dr. Irwin: Ladies and gentlemen, you have heard the addresses of the two Presidents, and it has been agreed by the Programme Committee, I think, to discuss them together. The subject is open now for your discussion.

Dr. Reade: Mr. Chairman, the time is short and I will not wait for anybody to get up before me, but I would like to make a few remarks to-day, about one of the sections of the address of the President of the Canadian Dental Association. The part I wish to speak of in Dr. Webster's address, is that relating to the International Miller Memorial Fund. You all know who W. D. Miller was, one of the brightest minds in dentistry, a man who was born and educated in America. He went to Germany, and after being there a number of years, was re-called to his own country to take charge of the Dental Department at Ann Arbor; you all learned with sadness a short time after he arrived here, he died, without being able to take up his duties. This man was well known, the world over; he had no local reputation, he was international. Now, this man was appreciated by all nationalities, as you will readily understand when you know that at the meeting of the International Dental Federation in Europe, it was proposed that a fund should be raised to perpetuate his memory. This fund was subscribed to by all nations. He belonged to everybody, he was too great to belong to one nation. Now, the form of the memorial must be such as would suit a man of his character. The memorial determined on was to be a fund that would not only perpetuate his name, but would be the means of carrying on the work that he so well began. This they knew from the man would be most pleasing to him. Now, a fund has been collected in a number of European countries. There are men in charge of it from several countries, from France, England, Spain, and Germany, and also from the United States. The fund is to take this form: Money is to be collected, to be invested at present in a German Bank, with a capital of over three hundred million marks, so it is very safe. The interest derived annually from this fund is to be given to the man who has done most to advance the interests of his profession, and it is to take the form of a diploma, a medal, and a sum of money. It is to be hoped that at some time a Canadian will have made such research, or will have done such work, as will entitle him to this prize, from his confreres throughout the world. In Canada nothing has been done as yet towards contributing anything to this Miller Memorial

Fund, and it certainly would be a shame if at some time a Canadian was awarded this prize, and that he should be humiliated by knowing that his country had contributed nothing towards that fund. Now, in order to see what can be done throughout Canada, in relation to this fund, I would propose of considering ways and pointed for the purpose of considering ways and means. The Committee I propose is not a Committee that will take up the work, but a Committee to consider means and ways, and to appoint a Committee that will take up the work, because the men on this Committee I propose to appoint will know better the names of the men in the different Provinces, who would be willing to give their attention to a matter of this kind. This Committee will report again shortly to the meeting, and tell what has been done. The names that I would propose, are: Dr. Seccombe, Dr. Smith of Cornwall; Dr. A. E. Webster, Toronto; Dr. W. J. Bruce, Dr. Garvin, Dr. Dubeau, Dr. Gendreau and Dr. Thomson.

Dr. R. Greene, (Ottawa): Mr. Chairman, Ladies and Gentlemen: It affords me very great pleasure to second this resolution, so ably proposed by Dr. Reade. I believe, we as Canadians should always be ready to recognize any movement for the advancement of our Profession, which means the uplifting or benefitting of the human race, and I believe, that this movement mentioned in the resolution, is certainly for the benefit of our Profession. I have great pleasure in seconding the resolution.

Dr. Seccombe: I assume the mover of the motion, Dr. Reade, will be on the Committee. He has evidently given this matter a great deal of thought, and I think he ought to be a member of the Committee himself.

Dr. Greene: Dr. Seccombe's name is on first as convenor of the Committee.

Dr. Seccombe: I would suggest that Dr. Reade's name be substituted for mine.

The Chairman: Dr. Greene has made the motion and will probably include Dr. Reade as one of the Committee.

Dr. Greene: Certainly, I would be very pleased to.

The Chairman put the motion, which, on a vote having been taken, was carried with applause.

The Chairman: Is there any further discussion on these addresses?.

Dr. McLaughlin: Mr. Chairman, I think, if there is one thing that the Programme Committee, has to regret in making up this Programme, it is that no particular arrangement was made for the discussion of the Presidents' addresses. They have come to all of us as very important addresses, as they should be. The President's address, to my mind, should be the key-note to the whole Convention, and I think they have both carried out this idea this afternoon. Now, no one of us, I am sure, is able to properly discuss the important matters that have been brought up in these addresses on the spur of the moment, and I have not got on my feet just to do that sort of thing, but simply to draw your attention, particularly to, and to emphasize one phase of Dr. Webster's address, and that is the part referring to the Conservation Commission that was appointed at Ottawa some time ago, in which Dr. Webster refers, and suggests that this Convention appoint, through their President, a Committee to lay before the Commission at Ottawa the importance of the health of the teeth, and the importance that the health of the teeth bears to the health of the body. As Dr. Webster has told us, this Commission has a Medical Department, to put it in that way, and it is very important at this stage, that we should bring to the attention of this Commission the important relation the teeth or dental hygiene bears to the health of the whole body.

Now, I think, the suggestion made by the President is a very wise one, that he be allowed the privilege at his leisure during this Convention of appointing a Committee that will have some considerable influence over the Chairman of that Commission, and over the members of the whole Commission, so I would move that the suggestion made by Dr. Webster be carried out, and that he have the privilege of appointing a Committee at his leisure during this Convention, and that that Committee interview the Chairman, and all of the members of the Commission appointed at Ottawa.

Dr. Woodbury, (Halifax): Mr. Chairman, while this subject can hardly be comprehended at this moment, I have much pleasure in seconding that resolution. I have no question that if this Committee presents this subject in a vigorous way it will receive a hearty welcome from the Commission, and will achieve important results.

The Chairman put the motion, which, on a vote having been taken, was declared carried,

Dr. Seccombe: Mr. Chairman, and Gentlemen: I am very glad indeed, that action has been taken on this matter of the Conservation Commission, and I hope to hear that it will have practical results. I had understood that this Commission's work was more along the line of investigation, the prevention of the pollution of the streams and water-ways, investigation along the line of tuberculosis, taking up the question of immigration, upon the question of national health and quarantine, and questions of that kind, working hand in hand with the different Provincial Boards of Health. However, certainly no harm can be done, and possibly a great deal of good may be the outcome of an interview with this Commission, and I sincerely hope that it may have the practical results which our Presidents hope for.

There is just one phase, of President Webster's address I would like to refer to, and that is the question of the aseptic practice of dentistry, and the aseptic arrangement of a dental office. This phase of the educational question must of necessity be taken up by each province, because it will readily be a matter between the Governing Boards of the Province and the licentiates. which they send out to the public.

The whole matter of education was discussed in a recent meeting of the Board of Directors of the Ontario College, and it was thought that this matter of asepsis in practice was one that belonged to the Boards of the different Provinces to deal with. and the matter of the education of the public might well be left to organizations, such as the Provincial organizations and other organizations throughout the country. .

Now, in Ontario, in this matter some progress has been made in as much as the Board appointed a Committee, and empowered that Committee to go ahead and spend money, if in their judgment any material could be collected, which could be sent out to the licentiates in Ontario, which would prove helpful, pointing out the necessity for the aseptic practice of dentistry, and the proper arrangement of a dental office. This Committee have invited Dr. Graham, the Professor of Bacteriology on the staff of our College, during his holidays, to get together some material, (and material from other sources will be collected), and I hope by next fall an official bulletin will be issued by our Board in Ontario, on this very important question, pointing out to the licentiates that if they do not practice dentistry along antiseptic lines, that they are certainly creating a breach of discipline, and that the Discipline Committee in Ontario will have just cause for investigation, if any dentist should continue to practice dentistry in such a way that his patients would be liable to contract any disease.

Now, I would like to compliment both of our Presidents upon these splendid addresses, and to add a word to what Dr. McLaughlin has said with regard to the discussion of these addresses. It seems to me his suggestion that these addresses should be given to someone before hand to open a discussion upon them, is a splendid suggestion. The address of the President of the Ontario Dental Society is also worthy of a great deal of attention, but as it covers the matter of education, and as I understand that this matter of the education of the public is to be taken up on Thursday, on the way to Niagara, the discussion of that paper may well be left, but otherwise I am sure the members would be very glad indeed to discuss Dr. Clark's address as well. (Applause).

Dr. Thornton: Mr. Chairman, there was an item common to the addresses of both men, that I think we might give some slight attention to, even though it may bring in a little discussion. I remember when we were in Montreal, the Montreal people took us to the mountain, that we might have a little more extended vision. I rather felt, as it were, that the President of the Canadian Dental Association, while there was no mountain in Toronto he could take us to, might metaphorically have taken us on a mountain to give us an extended vision of our opportunities, at least. Both men mentioned the fact that we had in Canada a great percentage of our people, who cannot pay for dental operations, and unfortunately we know that this is true. Perhaps, it is simply a vertification of that Scripture which says, the poor ye shall always have with you, but as I know the dentists of Ontario, I believe there is a field they might enter, where they could perhaps do a work equal to that done by Dr. Miller. Why should we always have so vast a number of people who are unable to pay for dental operations? As I have sat here, I have heard the street car going by, and the men on the street car are average wage earners, they get 22 cents an hour, $2.20 a day, $13.20 a week, if they work six days in the week, and no man can live in the City of Toronto, and afford to pay for dental or medical services for himself and family, on $13.20 a week. I would like to see the members of this Profession take some interest in the question of sociology, that they might try at least to devise some plan by which a larger number of the wage earners in this country would be able to earn a sufficient wage, that they would not have to receive these things as a matter of charity, but whereas men, without being made paupers, might pay for their medical and dental services, and for every other service which a white man should have, in a white man's country. (Applause).

ADDRESS OF WELCOME.

Controller Ward: Mr. President, Ladies and Gentlemen: I am here on behalf of the Mayor and Corporation, to extend greetings to your combined Associations, and to assure you that we heartily welcome your presence amongst us. Annual Conventions, such as that which opens here to-night, cannot but have a like decided and important bearing on the progress of your Profession and the welfare of every community represented by you. It is only by comparing present conditions and methods with those of the past that we are enabled to form a correct estimate of the progress of the times. Viewed from that standpoint, your Profession has, indeed, made great strides. The most youthful amongst us cannot but regard with amazement the marvels of progress that have been made in the Profession of Dental Surgery, even during his time, and since so much has been accomplished in the past, what may we not look forward to in the future? The Profession of Dental Surgery, like that of Medicine, is daily becoming more and more directly towards prevention and correction, rather than the cure of disease. Our Board of Education has recently taken steps leading to the medical inspection of all school children. Such inspection will, I presume, involve an examination of the mouth and teeth. (Applause). If it does not, then it certainly should, for no child can be healthy whose teeth are defective. These Associations might well take into consideration and urge upon the Boards of Education throughout the country the periodical inspection of the teeth of all school pupils. We look upon our City at the present time as perhaps the greatest convention City on this Continent. We have started the construction of a great system of sewage disposal. This great drainage construction will cost us some three million dollars. We have felt that for a number of years we were using our Bay for the deliverance of some thirty million gallons of sewage every 24 hours. We have felt, and in fact we are feeling the results of it, that this sort of thing could not go on without us paying the penalty sooner or later, and we have decided to expend some three million dollars in protection against that sort of thing. There cannot be, as you know, as men and women of common sense, thirty million gallons of sewage emptied into the Bay every 24 hours without our paying the penalty sooner or later. It must affect our water supply and contaminate it. Coupled with that, we are spending three-quarters of a million of dollars in a filteration plant. Medical Science tells us that the most modern method of dealing with the water supply where there is a possibility of pollution or contamination is by the introduction of filteration.

Dr. Webster: I have great pleasure in calling upon Alderman McGuire, as Chairman of the Reception Committee of the City of Toronto, to whom we owe a great debt at the present time for assistance in entertaining you at this Convention. (Applause).

Alderman McGuire: Mr. President, Ladies and Gentlemen: The President of the Council, Controller Ward, I think has covered the ground most fully in regard to the City of Toronto. He has told you what the City of Toronto contemplates carrying out in the great works they have undertaken, and I thought a very funny coincidence had happened here to-night, when he referred to the Board of Education's action in the inspection of teeth. I see to-night one of your members, an old friend of mine, Dr. Adams, who I think was responsible for that action being taken by the Board of Education. I remember a few years ago, that my good friend the Doctor put up many a fight with the Board of Education, or with the School Board at that time, to try to introduce this important work, and they thought that the Doctor wasn't serious, that there was nothing in his argument, that there was nothing to be gained by the introduction of the method they now propose to introduce in the Public Schools.

Now, Mr. President, you have referred to me as owing me something for what I have done for this Convention. Mr. President, when your deputation waited upon my Committee, the

Legislation and Reception Committee, over which I have the honor to preside, the importance of your Convention struck me at once, and I think the members of my Committee responded to the call most nobly and gave you what you asked. Whether we gave you sufficient, I say, sir, we gave you what your deputation expected, and if we have done that I think there is no complaint to be found. (Applause).

With reference to your College, I must say I was more than surprised to find you had erected such a beautiful building, and the gentleman who was kind enough to show the President and myself through the building said that we had right in the City of Toronto one of the finest Dental Colleges in the world. That is very gratifying to know, that we in our official positions to-night, representatives of the community, representing the great City of Toronto, have the honor of having one of the finest Colleges in the world.

Dr. Webster: Allow me to call on Alderman Dubeau, of Montreal. (Applause).

Alderman Dubeau: Mr. Acting Mayor, Mr. President, Ladies and Gentlemen: I have much pleasure on behalf of the Canadian Dental Association in thanking you, Mr. Acting Mayor and Mr. Chairman of the Reception Committee, for the hearty welcome you have given to our Association, and also for the contribution you have donated to entertain our visitors. Your presence here, Mr. Mayor, is a strong recognition of the efforts this Association has been making since its beginning to raise the standard of our Profession in this country, and also to educate the public. You probably are not aware, Mr. Mayor, that in this City of Toronto there is an Association called the Oral Prophylactic Association, whose aim is to procure for the public pure dental material, and the benefit derived from the sale of these preparations is used entirely to spread among the public the notion of dental hygiene. The men who are in charge of this Association are doing that work entirely free, and your presence here to-night is certainly a source of encouragement to them, and will certainly encourage them to persevere,

I have heard with pleasure that your Board of Education intends to do something in the way of the inspection of teeth. I have much pleasure in saying that in Montreal our controllers have decided to appoint dentists to inspect the teeth of the school children (applause), and by September when the classes open, we expect to find them in office. I have no doubt if you will use your influence you will have the same thing done here in Toronto, and by doing so you will deserve much credit from this Association. We often have heard the remark made that dentists and doctors are not taking enough interest in public affairs, and municipal affairs, and parliamentary affairs. That is quite true. In fact we never had an Alderman dentist in Montreal, except the Mayor of 40 years ago, and that is pretty long ago, and in the last Council there were 46 Aldermen and three medical men, but not a single dentist, but in this year in a Council of 27 we have seven medical medical men as well as myself. (Applause). This led the Ex-Mayor to say in his address that the City of Montreal must have been very sick to have seven doctors in the Council. (Laughter). In fact, it was very sick, but I can assure you that we are looking for perfect health pretty soon. I may say, when I accepted to run as an alderman in Montreal, it was not because I felt I wished a position in public life, it was only from a sense of duty. As I have worked for the last fifteen years to raise the standard of our Profession, I thought it was my duty to accept, so as to help my Profession as much as I could, and I have much pleasure in saying that my election was assured to a great extent by the work of my confreres in Montreal. I wish to thank you, Mr. Mayor, once more for your presence here to-night, and to assure you it is a great source of satisfaction to us. (Applause).

Dr. Webster: Ladies and Gentlemen: I would like to call on Dr. Whitslar, of Cleveland, to make a few remarks in this connection before the close.

Dr. Whitslar: Mr. President, and Mr. Acting Mayor, as a representative of the United States, I wish to express to your Acting Mayor and all these good Aldermen my thanks for my countrymen, and say to you that you are doing here to-day something that I have never witnessed in our country. Namely, the City of Toronto is giving to a Dental Convention a sum of money for the promulgation of the interests of the Society. That is something entirely new to me, and you are to be complimented as a Profession, and I am going to take that back home as one of the things that has filtered through my mind, and some of the other things that I am learning every minute. One of these things is this beautiful edifice. I have seen all of the Dental Colleges east of the Rocky Mountains, and I will say that this building excells all the others in some respects, not in every respect, but you have a magnificent building here, one that will help young men to a perfect knowledge of dentistry, which will in time conserve the health of thousands of people, and thus make better citizens for you, and we won't need any police either, Mr. Mayor, and consequently our asylums will be less filled; we have will a millennium before very long. I thank you Mr. President and Mr. Mayor. (Applause).

DENTAL OPERATIONS THAT ARE A MENACE TO THE TEETH AND SURROUNDING TISSUES.

By W. H. Whitslar, M.D., D.D.S., Cleveland, Ohio.

The earth began, as we are told by geologists, in the cooling of heated clouds, the mist condensing to form water, and eventually earth and rocks appearing. This was followed by vegetation, then anamalculae and larger animals, all dependent upon each other. The wonderful works of the Creator culminated in man, who was a perfect being. As man multiplied, distinct races arose; social and other phases of life increased, bringing into consideration the laws of heredity and environment. All of these preliminary conditions are antecedent to the topic we have for our discussion today. The subject must include them, though not so vital as the immediate history of ancestry, which frequently lends charm to the processes of reasoning from cause to effect. The subject assigned to me, however, is really a consideration of man's mistakes. It concedes, therefore, that we as dentists are sometimes mistaken, but with a trained mind and hand, and a special dental training, a suitable performance of service should be given to his fellowman. All of these faculties being apparent, there should be underneath a quick perception of conditions, without conscious attention, designated as intution. If this natural acumen is strong the process of diagnosis in disease is rapid and prognosis divined with greater certainty.

It is my desire at first to impress this fact, that many of the faults of bad operations upon the teeth are due to poor diagnosis, which further leads to bad judgment, for, the one is founded upon the other. In this we perceive the possibility of entirely wrong operations being performed.

Example.—There are times, rarely however, when the first permanent molar should be extracted. These are difficult cases to determine, and the temptation to extract this molar when broken down is powerful. To forsee the results of malocclusion in a case of extraction is not only good diagnosis, but rare judgment, if future disaster is prevented. Many examples could be given, wherein dependence upon diagnosis is all important.

Having made a diagnosis, the greatest question one can submit to himself is, "Will this operation restore these tissues to a normal condition, whereby their function is made the best?"

What may be the natural condition in a mouth, may not be a normal condition of the teeth and surrounding tissues. In such a case improvement can be prescribed. Observe a mouth in which the dental arch is irregular. The subject apparently lives well, the dental arch is natural to him, but it is not normal. Nature established his condition imperfectly, due to some hereditary conditions, or, all too frequently, because of improper extraction, or retention of the teeth. In this the standard or rule of the development of the dental arch has been altered, and the symmetry is lacking. To normalize this condition the orthodontia pre-determines the results of applying forces to this and that condition ere the teeth and jaws are brought into their normal occlusion. In performance of these operations he may make errors of adjusting these forces. He may use poorly constructed or ill-fitting appliances, which retain food, causing decay of the teeth and irritations of the gingivae, cheeks or tongue. Too rapid movement of the teeth may cause pericementitis and even death of the dental pulp. The application of force in the wrong direction, or improper retention of the teeth are detrimental to the teeth and surrounding tissues. Constant movement of the teeth does not allow nature to follow with depositions of lime-salts sufficient to keep up the equilibrium. More serious than all these is the possibility of disturbances of digestion, neurasthenia, and even nervous prostration to be considered. Orthodontia is a serious operation to subject some children to, for no doubt cases occur which require the keenest insight to the welfare of the child. Insanity has been produced by orthodontia operations.

In the question of diagnosis, the dental specialist, like all other specialists, is ever subject to having his judgment warped in favor of his own specialty. The specialist perceives more clearly the conditions pertaining to the line of study he is engaged in, and ordains their superiority over others. In consequence of this, his judgment may suffer. The crown and bridge specialist might offer his particular service, the prosthetist would desire an artificial denture, and the one interested in the treatment of pyorrhea alveolaris advise saving teeth, when extraction is desirable.

Are people safer in the hands of a very intelligent all around dentist? My answer is, "Yes," because he is able to predict failure for himself if he undertakes the work of a specialist in which he knows he cannot be successful. He knows his safe course is to refer the case to a specialist and thus safeguard his own reputation. This decision in the first place, was based upon his diagnosis, and its value cannot be over-estimated.

I have thus emphasized the first importance of diagnosis to lessen the possibility of menacing the teeth by improper operations.

The hereditary conditions of the mouth and teeth may preclude the possibility of doing any service which does not have some detrimental influence to the teeth. Likewise diseased teeth frequently are beyond the pale of comparative restoration. This is because there are no reparative tissues to utilize, as in general surgery.

Dentistry performs restorative and constructive service unequaled by the surgeon frequently. While the reparation is mechanical, it is built upon a *living base,* which constitutes the operation *surgical science.*

Dentistry has for its object the conservation of the teeth in order to masticate food properly, to assist in speaking, etc. Every operation that falls short of assisting these functions is detrimental and a menance to health.

The operations that may be a menace to the teeth and surrounding tissues are many, but it may be said that the fault lies mostly with the technical skill in their execution.

The beauty of practicing dentistry is the variety of study it affords, giving food for scientific thought and decision.

Every condition in the mouth is correlated to some other, hence when deciding what is best for one tooth, its relations with the adjoining and opposing teeth are necessary. If a filling is to be inserted, the kind of filling, if any, in the next tooth is to be noted so as to have similarity of materials both as to color and physical qualities. Durability and strength of filling materials are given precedence over color or cosmetic effects in most all operations. When teeth are beyond filling the question of extraction, or using them as foundations for artificial teeth becomes momentous. Judgment dictates the removal of diseased teeth and adjacent tissues seriously affected by abscess or purulent discharges that are not amenable to treatment. The retention of such conditions serve as irritants to the surrounding tissues and also to the nervous system, which may result in neuritis, neurasthenia, and even insanity,

It is complimentary to the dental profession that a medical insanity expert should make exhaustive studies to learn the possibilities and certainty of many cases of mental disease being instigated by the teeth. Dr. W. S. Upson,, of Cleveland, Ohio, is thus contributing to medical science valuable data. From these we are taught that every means should be taken by dental practitioners to eliminate abscessed conditions, also impacted and some unerupted teeth. The skiagraph is the principal means of arriving at a correct diagnosis in these cases, and should be used more frequently in dentistry.

Formerly the wholesale extraction of teeth was considered the greatest offense in dentistry. In 1879, a noted writer, Dr. J. W. White, stated that there were twenty millions of teeth extracted annually in the United States. For a time it would seem that this number increased, as we observed the large exhibits of extracted teeth before so-called "Dental Parlors." These exhibits are disappearing, and now many "snags" are utilized for the wonderful discovery of the age, the "Alveolar Method." This is another misnomer that has crept into publicity. It is a species of graft applied to dead and decayed timber, (teeth), whose only sprouts are dollars poured into the pockets of pretenders.

It is often a serious question to decide whether it is better to extract teeth and advise a denture, or retain some, and use either a partial denture or a bridge. Strong teeth are necessary for a partial plate or a bridge. Both methods are a menance to the teeth and tissues supporting them, but this may be condoned if a reasonable service for a considerable time is certain. The pros and cons of the situation should be explained to the patient and his preferences weighed.

Bridgework properly constructed is one of the greatest blessings to humanity, but sometimes the foulest mouths are those containing it. I have seen fractured jaw-bones held firmly and mastication made perfect by bridgework. It is known to have caused extreme nervous debility and insanity. The covering of roots of teeth under a bridge is reprehensible, and filthy practice, if the bridge is not attached to them.

The greatest menace to the teeth by crowns and bridgework is the effect upon the gingivae. The adaptation of this work to the piers is difficult and often is mismanaged, because the gingivae are not measured before bands are fitted. By carefully examining the gingival margins with a probe, it will give a proper idea of the distance under the border a band may be made to extend. Unless the fitting is perfect the edges become irritants and the beginning of all forms of inflammations are likely to occur and destruction of the tissues follow. This begins as a traumatic disturbance of the dental ligament. When this is destroyed an undue strain is placed upon the principal fibres of the peridental membrane, which from overstrain become neurasthenic and a passive condition obtains. From this it is only a step to interstitial gingivitis and a general break down of the membrane. The difficulties arising from these causes is a story in itself.

I have no doubt that many bridges are inserted when a denture would be better in every way. Even these will distort and irritate the tissues at times, to say nothing of the inartistic arrangement of the teeth.

Dr. J. Leon Williams, who is now perfecting models for artificial teeth, will revolutionize many of the staid forms of teeth and awaken the average dentist to the greatest possibilities of artistic, as well as the practical construction of dentures. This anatomical perfection will insure greater masticatory power and conserve the tissues.

It should have been mentioned that in the preparation for bridgework or crowns, splitting of roots, is a serious defect. Fracturing both rots and alveolus in extracting teeth is productive of much pain and after effects, especially if impure hypodermatic injections are used.

One of the greatest boons to humanity is the preservation of the teeth by filling cavities produced by decay. Dangers from these operations arise in the excavation of the cavities, near approach to the pulp, capping of pulps, and unusual destruction of tooth structure. Or, if the tooth pulp dies, then its removal and filling of the canal constitutes an operation that may forebode the greatest trouble that can arise in dentistry. The excitations produced by clamps, ligatures, separators, separating the teeth, and filling materials, are incomparable to the imperfect results of root fillings. Opening up canals, drilling through the walls, allowing filling to protrude into the apical space, suggests the nucleus of direful disturbances. To enter into a discussion of this phase of our subject would require many pages to describe it fully.

Dr. I. N. Broomell has shown the effect of large masses of gold to be harmful to a living tooth. For instance, there may be a disintegration of the enamel in connection with cement, which disintegrates beneath masses of gold. Also, diseases of the pulp will occur, which result in their death. No one should fail to read Dr. Broomell's article published in the Dental Cosmos for April, 1910. Each one of the above factors could excite a discussion as to their demerits pertaining to filling operations and materials.

In completing a filling one of the difficulties is to finish it so as to have a normal contour, and not disturb the tissues at the cervical margin of the tooth. The contour should be such as to extend beyond all points of contact and to serve as an incline for food to naturally fall into the cavity of the mouth. By contour, also service is rendered to obliterate food spaces between the teeth, These spaces invite disease of the gingivae and peridental membrane. Careless separation of the teeth, will also promote the same difficulties. The preservation of the gingivae from accidental or careless operating is second only to the filling of carious teeth. The preservation of the interdental spaces is of greatest importance. What is true of fillings is also true of inlays, either porcelain or gold. The ideals are the same, but there may be a tendency to allow the filling in the crevical part to go without careful reducing to the exact edge of the cavity. The inlay properly constructed usually demands more sacrifice of the tooth structure than fillings inserted in the old way, but they are less likely to damage the pulp or gingival tissues. Inlay filling has taught clearly the importance of "extension for prevention."

There are few medicaments used in dentistry that are harmful. However, it is well to state that destruction of the dental pulp is sometimes accompanied by pericementitis or even destruction of the membrane unless great care is observed in the use of arsenious acid. Nitrate of silver, concentrated solutions of hydrogen dioxid, zinc chlorid, phenol, and sulphuric acid, are other caustics that may be used detrimentally to the teeth and tissues Discolorations of the teeth due to nitrate of silver are produced by forming albuminate of silver, which acts as a resisting force to decay. Oil of Cassia used in pulpless teeth discolors, because of furfural, a chemical, which turns brown on exposure to air and light. While cocain is a protoplasmic poison when brought into contact with living tissue, its specific action is utilized in producing paralysis of nerve endings in dentistry. Solutions of cocain should be made at the time of their use. Ready-made solutions are dangerous, because of their decomposition after exposure to air. Careless injections of cocain may produce inflammations of the mucous membrane, and also be contaminated by the poisons of specific disease. Dr. Herman Prinz has recorded in his Dental Materia Medica and Therapeutics very interesting cases of psychic disturbances by injections of cocain.

The conclusion of this paper would not be complete without reference to the subject of so-called "Cleaning of teeth." Let us dignify it as an "operation," by letting it have the merit of calling forth the finest manipulations possible. It is not an ordinary procedure, though treated as such by many. It has a range of removing microscopic plaques to that of calculi as large as a hen's egg. With a perfect operation it promises immunity from decay and recovery from pericemental diseases, due to extraneous substances. Careless, thoughtless, and unskilled manipulation with improper instruments induce disease, leaving injury and filth everywhere, Microbic nests are in every corner, awaiting conditions to propagate larger colonies. Dental decay may run riot, the gingivae ulcerate, dental ligament melt away and the fibres of the membrane lose their grip upon the alveolus and the tooth is forever lost.

One of the greatest mistakes dentists have made in the past, has been the slight attention given to the removal of all foreign materials from the surfaces of the teeth in a thorough manner, and polishing these surfaces afterwards.

It is not only fair but just that a great tribute should be given to Dr. D. D. Smith, of Philadelphia, who has pleaded, urged and demonstrated to the profession, the great value of treatment, now called "oral prophylaxis." With such ideals of treatment consummated and thorough mastication of food mastered, may we not look forward to that conditin of man spoken of in the beginning of this paper, the Perfect Man.

DISCUSSION OF DR. WHITSLAR'S PAPER.

By Dr. Chas. Morrison, Montreal, Que.

The paper which we have just listened to, it appears to me, is one which does not seem to allow of much discussion. The reason of this is, that there are no definite unproved theories advanced, but it is simply a resume of simple facts, which we, as practising dentists, should all know. After reading the paper a couple of times it struck me that possibly these simple facts were just what were needed, as there is no doubt a great lack of care exhibited in many of the dental operations of the present day. This was probably the object for which the paper was written, and we congratulate the essayist.

It is well that the profession should constantly be kept in mind of the fact, that a dental operation, performed carelessly is almost certain to be a menace to some of the tissues of the mouth, and this paper should therefore be taken as a very potent medicinal dose by all present. If the disease is not present, then the medicine can do no harm.

In all the walks of life the man who does his work conscientiously and intelligently will have his satisfactory results, while the careless man is bound to have frequent failures. And these failures on the part of careless operators it must be remembered are not always due to lack of ability, but in many cases can be attributed to the fact that he tries to accomplish more work in a given time than it is possible for him to do.

In these days of progress, as applied to our profession, we are too apt to be carried away by the new ideas and methods that are from time to time being put before us. These ideas and methods would seem to enable us to get through more work, obtain good results. and with less cost to our physical energy. I do not disparage the new methods, but is it not true that in many cases our patients would be much better off with the more simple operations, carefully performed. Probably, the most simple operation we have to perform is the insertion of an amalgam filling. The color of the material does not blend with the color of the normal tooth, and yet a compound amalgam filling, well contoured and finished is a work of art, and in most cases has permanent results. Such a filling should never be inserted without the use of the matrix, and should always be polished at a subsequent sitting. This would in many cases take considerable time, and the dentist, basing his charges on so much per filling, finds that the fee is inadequate.

Caps are fitted, and crowns and bridges are adjusted, and cemented in a hurried and slipshod manner, and neither the patient or the practitioner can have the maximum amount of satisfaction with the result. The solution of the difficulty is simple; charges should be based on the amount of time required to complete the operation.

The average patient of a man whose practice is among the better class, wants good work done, and if the situation is explained to them it will not be difficult to obtain adequate fees. When a man knows that he is being well paid, it is only natural that he will take pains with his work, because he can afford to.

If the operation is along the lines of bridge-work, for example, he should proceed carefully in the preparation of his abutments for the reception of the caps, or crowns, as the case may be, step by step until the bridge is completed and put in such a way that there can be no injury to the tissues of the mouth. In many cases in injuries due to badly fitting caps, bridges and regulating appliances, protruding, and poorly finished fillings, the too violent separating of teeth, etc., etc., are limited to the extent of chronic inflammation of the gingivae and surrounding tissues, but every once in a while we find that the injury is more serious, and a malignant condition is set up, which may compel a major operation involving the loss of teeth and much bone tissue to effect a cure, if a cure is possible.

As the essayist says, there are innumerable operations, which are a menace to the tissues of the mouth, I would go farther, and say, that almost every operation which we are called upon to perform, if not done carefully is likely to cause injury.

I am pleased to see the emphasis made in regard to diagnosis. I cannot gather the Essayist's meaning, when he makes the statement, "Are people safer in the hands of an all round, very intelligent dentist, than in the hands of a specialist," to which he answers, "Yes!" "For the reason that the specialist's judgment is often warped in favor of his own specialty." In the first place, I would always take it for granted that a patient had already been in the hands of an all round dentist, before being handed over to the specialist; and secondly, once being placed in the hands of a specialist, the latter does what in his judgment is the right thing I think the only way out of the difficulty is for us all to be all round intelligent dentists, and when we find work that the specialist should do, let him do it and see that he is a man who *can* do it.

This, Mr. Chairman, is all I have to say. I have brought in the subject of fees with my discussion.

By Dr. Chas. E. Pearson, Toronto, Canada.

Let me preface my discussion of the essay with this statement, that from over ten years careful study of the hard and soft tissues, I am convinced that not 5 per cent. of the cases of pyorrhea, caries or necrosis of the bone are due to, and can be traced to faulty dental operations. I am firmly of the opinion that negligence and the various predisposing influences play a greater part in the development of such conditions, than poor dentistry. I just mention this in case some of you are feeling like joining the ranks of the real estate brokers, or go out to have a horn or two.

Apart from this, I will admit that the picture of dire disaster which our essayist has so ably painted for us, opens a field for profitable discussion. The essay is admirable, inasmuch as it does not pretend to deal with the accidents which may befall the practitioner, but rather with unfortunate conditions directly following a deliberate act; which act was the result of bad judgment.

For instance, a young man aged 25 years, presented himself. On the lower left side the first and second molars had been lost. The remaining teeth were in good average condition. A bridge was decided upon from the lower left second bicuspid filling in the distal surface which was removed in preparation for an inlay with a post for an abutement. The pulp was not exposed but was devitalized with arsenic. By accident the patient did not return for six days, when the tooth was very sore to pressure and particularly sensetive to heat and cold. The pulp was removed, using ethel-chloride, and a treatment of carbolic acid, sealed in for two days, it was then followed by oil of cloves. The tooth was sore and very loose. In about three weeks time, the soreness left it sufficiently to finish the preparation for inlay. A bridge was made and put in temporarily as a stay to the tooth, which is still very loose and slightly sensitive to pressure after two months. Apex large, subsequent an extraction of roots on other side of mouth showed abnormally large apical foramena.

To my way of thinking, this is a splendid case in point. Even though the apical feramen were normal, leaving no unforseen danger to arsenical poisoning, there was no necessity for the removal of the pulp, as a simple inlay with a groove into which rests an uncemented bar from the bridge, is sufficient to sustain the strain required in mastication.

That second bicuspid will never regain its normal masticating power while the bridge adds twice or more than twice the function of it. Why take such chances?

I have made it a rule never to devitalize for a bridge abutment, unless the crown portion of the tooth is weak and the pulp canal is required for the purpose of holding a post to supplement the strength of the dentine remaining in the crown portion of that tooth. Of course, it goes without saying! This only applies in cases of healthy pulp. By following this rule there is less liability to perform dental operations, which are a menace to the hard and soft tissues.

Another condition I wish to touch upon is what I would call the lazy dentist's habit, or better still the "phosphate habit of the putty dentist." It's easy, it's cheap, and it's filling. You may putty with percha, you may putty with amalgam, you may putty with gold, but the worst putty of all, is cement. For getting out of trouble yourself, and getting the patient in, it beats anything in the dental pharmacopeia.

How many times have each of you had patients come from Dr. So and So, with a long story of faithful attention to the teeth, with years of inflammed gums, foul breath, and great discomfort. On examination, what is found? Putty and glue and slime. No cusps, no contours, no contacts. Gums hypertrophied, process absorbed, pus pockets, indigestion, and "visited my dentist every three months." The fact that cement dissolves away more readily, below the gum margin, makes it a menace to the hard and soft tissues. It sometimes takes years to put such cases right, and bring about a comfortable *"Hutax" condition.* The only remedy is hard work, well contoured inlays, good, honest, hard, well polished amalgam and sane prophylactic treatment.

One other phase of the subject, I wish to mention, and then I have finished.

There is no more constant and degenerating influence affecting the gum tissue and the undulifying process, than the pressure of partial dentines and the imitation of food particles squeezing between the partial dentines and the rucks of teeth.

Dr. Webster: Dr. F. D. Price, of Toronto, is to continue the discussion by illustrations. He has illustrations of dentistry, which he would like to show you.

I might say the privileges of the floor are extended to everyone to enter into this discussion at the close of Dr. Price's illustrations.

Dr. Price: Mr. President, and Gentlemen: It is my purpose to show you some illustrations of the damage done to hard tissues in the mouth, due to improper dental operations. I purpose, instead of making any remarks with reference to the excellent paper of Dr. Whitslar, to make a few remarks with reference to what is thrown upon the screen, and incidentally I shall refer to the paper.

Dr. Price then showed quite a large number of lantern slides, and made explanations with regard to them.

Dr. Webster: The subject, gentlemen, is open for general discussion. Remarks will be limited to five minutes.

Dr. C. A. Murray, (Moncton, N.B.): I am particularly interested in Dr. Whitslar, if he will excuse me for being personal, because I am proud to say he is a graduate of my own class at College, and when his name appeared on the programme, I was very glad, I have been particularly interested in the diagnosis and the good judgment a dentist should use. I think it is a good thing to diagnose your case thoroughly and then use your very best judgment in applying the remedy. One of the most successful physicians is one that can diagnose his case, and after that is done, then apply the remedy.

Another thing, which has been a great menace to the hard and soft tissues of the mouth, is ill-fitting gold crowns; in fitting the bands we have seen the results in the mouths of different patients. We have seen the results here on the screen, and have also heard it mentioned in the paper. Another thing, which I think all of you will agree with me, that has been a great menace to the tissues of the mouth, is the enlarging of the canal of a devitalized tooth, either for the filling of that canal or for the purpose of putting on a crown which requires a pin. How many times have we seen where the operator, through poor judgment, has punctured the sound part of that root and gone into the alveolar process? Time will not permit to go on and tell you the results that may arise from such an operation.

Dr. Grieve: I have a few slides here, which I would like to show you. If I understood the essayist's paper correctly, he spoke of the fact that there were some instances in which it was permissible to extract the first molar. I should think, it is never permissible to extract a first molar. He brought out the point that diagnosis was the main factor. I would like to make a plea for the many teeth that are extracted. I have only a few slides, but I will show instances where some odd teeth have been extracted with the idea of correcting malocclusion, but it does not do it as a rule. If they go into the subject more thoroughly and study occlusion, they will find out in many of the cases where they seek to correct by extraction, that it is a rank failure. I have seen instances where a lateral has been extracted, and in some instances even a cuspid. It was almost a crime.

(A number of lantern slides were then shown by Dr. Grieve).

Dr. Magee: I have made one or two memorandums as Dr. Whitslar was reading his paper, which I would like to make a few remarks upon. He spoke of separators injuring the tissues. There is a great deal of injury done by certain separators, but if any of the members here, have tried the Perry separator, and another one that has been designed on the same principle, I forget the name, they have solved a great many of the problems. I am only saying this now for those who would like to obviate the difficulties in connection with ordinary separators. The Perry 2 bar separator and the Universal Separator will separate with a modicum of injury and pain.

In looking at some of the slides where root canal fillings have been protruding through the sides of the root, it is a tender subject with me. Perhaps, a good many will remember some years ago I undertook a bet with our old friend McInnis, that I could successfully fill the canals of seven out of ten ordinary molars that were found in practice, and the results were to be sent to Dr. Price of Cleveland. The teeth were handed me in plaster by some members of the Profession, and I filled the canals of those teeth and sent them to Dr. Price, of Cleveland. He made skiagraphs of them, and they were published in our Dominion Dental Journal. I lost the bet, but our worthy friend, Dr. Ottolingui, and our exceedingly worthy President, both paid me a very high compliment. I want to say this, in justice to myself, that the roots were exceedingly well filled. I knew I had made a failure of three roots, I had gone through the sides of them, but I felt the conditions were hardly fair, and yet I took all the chances, and anyone who has seen the doctor who made the effort to fill those canals, and who thought he was doing faithful service; he was doing it according to his best judgment, but he made a failure. I venture to say if those teeth were opened and examined you would find a great many of them were properly filled, so don't think that mine was a botch.

In commenting, during the giving of the slides on Dr. Broomell's paper, I can hardly agree with him. I read it very carefully. I don't want to say a lot of the material in it I considered bunkum, but, with all due deference to his reputation, I cannot agree with him in one of the deductions he makes. A man will readily hunt up material which proves his case. I think, it is a very much better position for a man to take to hunt up material that will damage his case, and then prove his case by it; it is not well to throw aside the things that will disprove the case, and just present those things that will prove it. Dr. Broomell made the statement that pulps will die under a crown, and he says in his paper when you are going to adjust a crown for a bridge you should devitalize. I make it a point to save alive all pulps I can, whether it is to be used as the abutment for a bridge or to have a single crown, and I have been practising for a good many years and I yet have to have it proved to me, that I should devitalize the pulps of teeth to be crowned. If the pulp was intended to be dead, nature would have had it out of the way long ago. I think a tooth is very much better to be kept alive than to have it devitalized. If you are very sure you can fill that root to the end. there might be some justification for it, but no man in the world can say he can get that tooth filled to the end of the root; there may be pulp stones in it, pulp nodules. I think no man can properly claim those pulp stones are caused by irritation, resulting from caries. I have examined a great many teeth that never had a particle of caries, and I found a good many pulp stones in them.

Another remark Dr. Whitslar made was with reference to calculi; he said, it came from very minute particles to lumps the size of a hen's egg. There is only one picture of a mouth that I ever saw that could hold a hen's egg or a piece of calculi the size of a hen's egg.

In the discussion, and while it didn't come properly in the field, Dr. Pearson spoke about cement and puttying and that kind of thing, and he made the remark that the cement is always below the gum line, Properly manipulated, cement put in where I consider the gum line is will not dissolve out. It will dissolve out at the gum line, but not below it.

Dr. Morrison, in his remarks, claimed that amalgam fillings should be finished at a subsequent sitting. Now, my practice is always to finish and polish the filling at one sitting. I think, the amalgam filling should not be touched below the gingival border after you have taken the rubber dam off. No cavity which projects beyond the gum border should be filled without a matrix, especially a proximal cavity, but when you finish it, you want to finish it at the one sitting. All those fillings should be made with quick setting amalgam, and there is no reason why additional time should be taken up at a subsequent sitting, for the finishing and polishing of a filling, that can more easily be done at the time of insertion. More that that, I have yet to see the nice results that will be obtained from polishing the filling afterwards, that can be obtained from polishing it at one sitting. There is a brightness that is got there, and there is a blackness which will always follow that, which will not be found if the filling is properly polished at the time it is inserted. If it is polished at the time of insertion there is a greyness that never leaves it, and it never gets quite so black as the one polished at a subsequent sitting.

Dr. Whitslar: Mr. President, Ladies and Gentlemen: My paper has done just exactly what I wanted it to do, call forth a general discussion. If I had started out and pursued any line of thought, you would have thought that I was a specialist, and if I had pursued that hobby to its end, we would not have had the good discussion that has followed, and therefore I feel very thankful that I took the course I did in making a general paper of it. I agree with Dr. Morrison, that a good amalgam filling is one of the best fillings that can be made, and I will say to Dr. Pearson that a good cement filling, is better than a poor amalgam filling, and a good amalgam filling is better than a poor gold filling, or any inlaid filling. The great trouble now, as puttyists in our work today is, I fear, in making up such cement fillings that some of us are going to allow these fillings to take the place of permanent fillings. We must treat them as temporary affairs, and talk of them as such to our patients, otherwise we will have conditions that obtain such as spoken of by Dr. Pearson. I imagine the persons he referred to as doing slovenly work are those who are slovenly in other ways, and who depend, perhaps, upon their good looks and pleasant manners in holding their clientele, which is not altogether a desirable factor in a professional career. A man should have a good personal appearance, and good manners, but he should substantiate them with good work.

I think, there is a great deal in what Dr. Magee and also Dr. Pearson says: I preserve the dental pulps in most of my teeth, where I put on a crown or bridge, if they are in a healthy condition at the time. Dr. Broomell evidently seems to think that in the end the pulp will die, dry gangrene will set in, and possibly later on moisture creep in and produce conditions which will produce an abscess; but I would often rather take my chances of that, and preserve the vitality of the pulp, because if we have that pulp in a good healthy condition, then we are more sure of the peridental membrane being healthy.

I knew that Dr. Grieve would at once take issue with me in regard to the extraction of the first permanent molar. I said in my paper, very rarely it should be extracted. Recently I had a case of a young girl, ten and a half years of age, whose second molars had not erupted. I found the first permanent molars very badly broken down, some of them below the gingival line. My judgment was to extract those molars and take my chances on the second molar coming into its place, and the third molar doing so normally. I referred the case to an orthodontia specialist, and he said not to extract those, but to fill and preserve the teeth. I followed the advice of the specialist, and I followed just what I have advocated in my paper, and if I am not sure of the condition myself, I go to one whose advice is superior to mine in his branch of work. The difference between a specialist in dentistry and a specialist in medicine is quite considerable. We are working upon tissues which are not repaired; our work is largely mechanical; we are not dependent upon systemic conditions away back of us, the action of the heart and of the liver, and of the kidneys, and all those conditions; in medical science a specialist is qualified more in that line of work than a dentist would be in dental treatment. So, with regard to Dr. Morrison's reference to my statement in that regard, all I can say is, that he said it in a different way to what I said it; we both had the same opinion, but stated it in a different way.

Dr. Murray struck the key-note, in my belief, in regard to my paper, that diagnosis is the principal point to be emphasized in the paper. I laid a great deal of stress upon that. If our diagnosis is correct our opportunities for doing good are greater, and our judgment is better.

DEAD PULPS AND THEIR SEQUELÆ.

Dr. D. Norman Ross, Winnipeg, Man.

Mr. President and Gentlemen: In presenting this paper I have not aspired to any claim on originality, neither have I attempted to give any account of the research on the subject. In the matter of treatment of the various conditions which occur I deem it enough to mention which, in my opinion, is the best and most approved form of treatment, while the details of that and many others can be learned by consulting any recent text-book on the subject. In all probability there will be much said concerning the recognized treatments in the discussion which will follow this paper. Probably the most common conditions which dentists are called upon to treat are those which have, as a primary cause, the death of the pulp, which followed by apical infection gives rise to an important series of sequelæ. Truly it can be properly claimed that this is one of the most important problems in the entire field of dentistry.

From a pathological standpoint, canals containing non-vital drogen dioxide, sodium dioxide, and sulphurous acid, which destroy its chemical composition, rendering it colorless.

The most serious conditions may obtain after the infection has involved the tissues external to the pulp canals. At first the pericementum becomes the seat of a subacute or acute inflammation. On account of the tissues being enclosed by bony walls the pain may be excessive. The tooth becomes extremely sensitive to touch and percussion; it is elongated, while the gums over the apex may be markedly injected.

The principal micro-organisms found, consist of staphylococci, streptococci and the diplococci pneumonae. The last named has been present in seven out of ten cases examined.

It is found that infections caused by any two or more of the above organisms are much more severe in their character than is the case in a single infection. The staphylococci cause a circumscribed infection, while that of the streptococci has a tendency to spread along the fascia.

In any case where the pericementum remains the seat of active inflammation for from one to three days, there is considerable death of cellular elements in the inflammatory effusion and pus forms, giving rise to our next sequelæ, that of alveolar abscess.

The predisposing causes of alveolar abscess may be said to be any condition which reduces the vital resistance of the individual and thereby favors the development and extension of pyogenic processes. Among these conditions may be mentioned syphilis, tuberculosis, inherited conditions indefinitely classified as strumous and acquired cachexia. The exciting causes may be found in the pyogenic cocci, which have gained entrance to the periapical tissues through the foramen of a root. The parts are rendered susceptible to abscess formation by the growth of organisms yielding ptomains and other waste products, which enfeeble the cellular elements. Pus is formed by cellular destruction, including leucocytes and may discharge from the affected parts through one of many channels. Ordinarily the course is the one of least resistance, but may take place in any direction, being often influenced by the force of gravity. It may discharge through the root canal, beside the neck of the tooth, into the antrum or floor of the nasal cavity, or more commonly through the alveolar plate and gum appearing by a small fistulous opening nearly over the apex of the affected root. Occasionally the opening may be on the face, or in case of the lower jaw the pus may burrow through the body of the bone and appear on the chin or neck. More infrequently the pus, instead of discharging externally, forms a cystic tumor in the bone, or may burrow into the alveolus, producing caries of the bone. Oftentimes the pus during its course causes the periosteum to be lifted up sufficiently to cause more or less necrosis. In syphilitic subjects this often amounts to an extensive involvement.

The tooth is sore to bite on and gives a dull note on percussion, while a fistula from which pus may be obtained by pressure is generally evident. The clinical history often aids materially in making the diagnosis.

The treatment consists of rational therapeutic attention. Pus must be destroyed, the tract of the fistula and abscess cavity thoroughly cleansed and growth of healthy granulation tissue encouraged. In caries, necrosis and cysts the usual operative procedures are put into practice.

The sequelæ classed as general, comes probably more properly under the care of the medical profession, and arise from the septic cases only. I think you will agree with me when I say that the medical profession fails frequently to realize that mouth conditions often stand in a causative relation to remote complications. This is not difficult of comprehension when one considers what the results might be to the system generally from the continual swallowing and absorption of pus and its toxins from septic conditions following the death of the pulp. The simple fact of these teeth being painful often causes, especially in children, the readily formed habit of bolting the food, as this is the way of least pain. The poorly masticated food is hurried into the stomach, which becomes overtaxed, its function becomes greatly impaired, giving rise to a general disturbance throughout the digestive tract. A large proportion of the food never reaches that stage of digestion necessary for absorption, so that there naturally follows more or less mal-nutrition which, during development, is of grave importance. As eminent authority as Sir Frederick Treves, who was surgeon to our late King, states that such portions of undigested food becomes lodged in the coecum and by fermentation there, forms one of the etiological factors in appendicitis. A considerable amount of pus from abscessed teeth is unavoidably swallowed, causing serious disturbances to the organs of digestion. Many stomach disorders can be directly traced to such a source. Miller says, that as much attention should be paid to the mouth in cases of digestive troubles as to the diseased stomach. Notable among such disorders may be mentioned dyspepsia, gastric ulcer, chronic and septic gastritis. The altered function of the stomach and the impaired bacteriacidal action of the gastric juice permits a more or less quantity of pus to pass into the duodenum and small intestines. The resulting irritation gives rise to a marked and persistent diaorrhoea. When the pulp is dead and the pericementum is invaded, there is no doubt of general infection from this source. More or less septic intoxication is a comon attendant upon severe septic apical pericenitis and septicemia, accompanied by inflammation of the neighboring lymphatic glands, is remarkably frequent.

Pyogenic organisms, gaining entrance to the blood current from the local source of infection, establish pus formation in pulps, or those in which the pulps are absent, may be divided into two large classes; the aseptic, being those which are as yet free from micro-organisms, and the septic, those containing pulps or their remnants in which micro-organisms have developed.

The aseptic cases include those that have been intentionally devitalized by any of the various methods used, providing that the necesasry aseptic precautions have been exercised. To this class of cases also belongs that condition known as ''dry gangrene.'' In the latter instance the pulp appears as a dry, tough, shrivelled up mass, partially occupying the pulp chamber and canals. Such a condition obtains after traumatic death of the pulp without exposure and may result from blows, biting thread, chewing ice, rapid wedging and regulating or non-fixation after regulation. Frequently dry gangrene may follow an attempt of the conservative treatment of the exposed pulp by capping with zinc oxychlorid or the application of tannifying substances, such as alum, formaldehyde or tanning to the stumps of pulps. The tooth is found to lose some of its translucency, but is not much changed in color. It fails to respond to tests of heat, cold, or electricity, and drilling is painless. On opening the canal neither pus nor odour is present.

In the septic cases the pulp becomes invaded by many of the numerous micro-organisms which are usually present in the mouth and it will present a variety of conditions according to the depth of invasion of the organisms. They range from superficial ulceration of the pulp to its disorganization through putrefaction resulting in moist gangrene. In this latter stage the Bacillus Gangrene Pulpae is the most important organism and three types of cases may be observed. First, in teeth apparently sound, the bacteria entering either by way of the blood or through the dentinal tubules from cracks in the enamel. Second, where the pulp has died after the tooth has been filled but the canals not treated, or where the canals have been partly filled, the bacteria gaining entrance through crevices about the crown and root fillings. Third, teeth having open cavities and canals, the infection coming from the mouth,

The dead or partially dead pulp forms an ideal culture medium for the developmnt of the saphrophytic bacteria which have entered it and a serial decomposition occurs similar to putrefaction in other localities, until the contents of the canal and tubules are completely destroyed. In the earlier stage of the process the pulp resembles a yellowish mass of sloughing tissue which can easily be removed, while later it is darker and finally may be rendered liquid, or the canal may appear dry.

The tooth apears much darker in color and does not respond to heat, cold, or electricity. There is no pain complained of, but a bad taste in the mouth, due to the escape of gases through the tooth, may be much in evidence. On drilling a disagreeable odour is noticed, which is increased on opening into the canal.

Concerning the treatment of the above conditions it may be said that dentists should be prepared to treat any condition of a tooth with a non-vital pulp which is presented, but above all, it should be their duty to make sure that from no fault of their's should infection obtain in the aseptic cases, or extension of the infection beyond the pulp canal in the septic types be permitted.

In aseptic cases the rubber dam should be applied to the tooth and the crown of the tooth disinfected. The canal is then opened and the contents removed (aseptically), when the canal is dried, rendering it ready for immediate filling.

In septic cases the canals must be disinfected and the contents removed when the root is ready for filling. To facilitate the removal of the canal contents and at the same time render the canal aseptic, a choice may be made of either the use of tricresol and formalin, sodium dioxide, or the Callahan method. In small canals which necessitate enlargement, the latter method is the ideal modus operandi. Instead of filling the canals at once there should be sealed in them tricresol two parts, formalin one part, for three days, at the end of which time the canals are ready to receive their permanent filling.

There is a great difference of opinion regarding the proper root filling. In this respect zinc oxychlorid holds first place, but is objected to on account of its irritating action on the vital tissues at the apex. Gutta-percha ranks second in quality. Probably the combination of these two materials in the following manner is most satisfactory. Moisten the dried canal with antiseptic chlora-percha or an eucalyptol solution of gutta-percha and fill the apical two-thirds of the canal with antiseptic gutta-percha in the form of a cone; the remaining portion of the canal and pulp chamber is to be filled with oxychlorid of zinc.

The sequelæ of dead pulps may be advantageously considered under two heads—local, those appearing in and around the mouth, and general, those occurring in other parts of the system. Of these the former, from the dentist's standpoint, is of the greater importance, since it is these conditions which present themselves for our diagnosis and treatment.

Providing the canals have been successfully treated and filled, all those cases of the aseptic type, together with those of the septic variety in which the infection has not been permitted to extend beyond the pulp canals, present two noteworthy sequelæ These consist of a lessened strength and durability of the tooth, and a varied discoloration. The change in color is due to the action of hydrogen sulphide on the iron of the hæmoglobin of the broken down, red blood corpuscles, producing a pigment which occupies the tubules of the tooth. The treatment consists of attacking the pigment molecule with such agents as chlorine, hyother parts of the system, as an osteomyetitis, or in the lungs, or the brain, including its membranes.

Probably one of the most serious diseases which is believed to have a direct bearing on the absorption of pus in the mouth is pernicious anemia. William Hunter claims that it is a very important cause of the disease.

Occasionally pneumonia may be traced to an abscessed tooth as a primary cause, the exciting cause, in all probability, being the diplococci pneumonae which has travelled from the affected tooth by way of the blood to the lungs. Such cases, on becoming septic, usually have a rapid and fatal termination.

Neuralgia, nervous disorders, rheumatism, endo-carditis and insanity very frequently have as one of their etiological factors the presence of abscessed teeth.

The treatment of the general sequelae should be by the cooperation of the dual professions, medicine and dentistry, to attain the fullest benefits possible.

DISCUSSION.

Dr. A. V. Lester, Hamilton, Ont.

Mr. President, Ladies and Gentlemen: Dr. Ross's paper reached me Friday, with a note enclosed to return as soon as possible, so that it could be sent on to Dr. Berwick. It was returned on Saturday, and in consequence, I did not have as much time as I would have liked.

In opening the discussion I would first like to compliment the essayist on the excellence of his paper. Dr. Ross stated facts recognized by the profession as standard, and as he states, has nothing original and in consequence he has left little room for discussion. There is probably nothing in dentistry to-day so important as the treatment of dead pulps, and certainly nothing which taxes the skill and patience of the dentist with sometimes indifferent success and little remuneration.

Dr. Ross in his paper says, to facilitate the removal of the canal contents and at the same time render the canal aseptic, a choice may be made of formalin and tricresol, NA 2, O2, or the Callahan method. Does he mean at the first sitting? If so, I do not agree with him, for the reason that we are liable to force infectious matter through the apices of the root. To my mind the first sitting should consist of nothing but sealing formalin and tricresol in the pulp chamber, to sterilize the contents; then at the second sitting, remove the contents of the pulp chamber and canal and proceed with any of the aforesaid treatments.

In filling root canals, the essayist suggests as an ideal filling, to fill the first two-thirds with gutta-percha and the last third with oxycholordi of zinc. If the first two-thirds are hermetically sealed what value has chloride of zinc.

For filling these canals, I would like to suggest the following method which has given good results; fit a gutta-percha point in the canal of the tooth and remove. Mix formalin and tricresol with oxyphosphate powder to a creamy consistency. Work this down the canal. Then place your gutta-percha point in the canal, and seal with a warm instrument. This method you will find worthy of a trial.

In teeth which are aseptic, those which have been recently devitalized, the essayist's method that they should be filled immediately, providing the hemmorrhage can be controlled, is ideal, as you will never get them in a more aseptic condition.

The general sequelæ arising from dead pulps are very important and every one will agree with Dr. Ross that they play an important part in the health of the individual. In conversation with a medical man not long ago, he told me that in every case of rheumatism that presented, he first examined the mouth to see that the teeth were in good condition. The famous Dr. Ostler is responsible for the statement, that decayed teeth has caused more deterioration in men than alcohol.

Dr. Ross says, the treatment of the general sequelæ should be by the co-operation of the dual professions, medicine and dentistry, to attain the fullest benefits possible. In another paragraph he says, "I think you will agree with me when I say the medical profession fail frequently to realize that mouth conditions stand in a caustive relation to remote complications." Gentlemen, the cure of most any disease is to find the cause and remove it; then if we can cure these conditions, why work in conjunction with the physician, and let him take the glory, when the cure rests in our hands.

Dr. Berwick: Dr. Lester in opening his remarks said his time was somewhat limited. I received Dr. Ross's paper late yesterday before leaving Montreal, and I really had not had a chance to look at it till I got on the train last evening. I must apologize to the meeting for not having a proper discussion of this paper prepared. I would like to congratulate the essayist on his very carefully compiled paper, which contains very many useful facts, and I will only attempt to touch on two or three minor points in the paper, which may possibly be of interest to some. He classifies the two classes, aseptic and septic, and in this connection it is really the septic cases in which we are chiefly interested. I just want to speak briefly concerning the treatment of these cases. I think we have all found since the use of formaldehyde was brought to our attention that we have achieved results which we were unable to achieve before. I agree with Dr. Lester in his statement that no attempt should be made to remove the contents of the pulp canals at the first sitting. I think, attempts along this line are responsible for a great many aggravated cases that we have to deal with. In connection with this treatment the regular recognized treatment has been that prescribed by Dr. Buckley of formaldehyde and creosol. Recently I had called to my attention the preparation which is known as formacoid. Perhaps, a great many of you are familiar with it. It is solidified formaldehyde; it is really a very much safer and more convenient method of treating these cases than with the liquid preparation. These are made up in the form of pellets containing 1-12th of a grain; they are very small in size, about an eighth of an inch long and about a twentieth of an inch in diameter. My method, since this has been brought to my attention, is, at the first sitting to open up the teeth and wash out the pulp chamber as well as possible, insert one of these pellets in the pulp chamber, seal it tightly and leave it for three days, and the results I have achieved are little short of marvellous to me, and I have given it some very severe tests recently with good success. Then at the subsequent sitting remove the contents of the canal and proceed in the ordinary way.

Now, the essayist here laid special emphasis on the necessity of placing the rubber dam in all aseptic cases. We will all agree with him in that, but I would like equally to emphasis the necessity of placing the rubber dam in septic cases and sterilizing the teeth included in the rubber before proceeding with the treatment, because it is just as essential to prevent a mixed infection as to prevent infection in the other cases.

Of two or three different methods mentioned for treating root canals he mentions sodium dioxide, which we know to be chemically correct, but the difficulty in applying this treatment and the dangers arising from it are much greater than in the case of formaldehyde. I think in our cases in a great many instances in our practice we are too often looking for some royal road to success; we are always looking for some new and easy way to accomplish these results, and in my experience there is no easy way. Results are only attained from the most careful and conscientious work. We must be careful in every detail. I have seen very good results obtained from indifferent methods, simply because they were carefully and conscientiously carried out.

Dr. Magee: I think it is a subject where a great deal of discussion can be brought to bear. The question of root filling is one that every man must judge for himself. The first speaker who got up, in speaking about root filling, wanted to know why, if the root was perfectly sealed, it should require anything at all between it and the permanent filling in the crown. There is very frequently a septic condition which will follow through the canal and sides of the root, and it is well to put something there that will exclude the bacteria that will sometimes leak in through, perhaps, faulty work or subsequent caries, undermining the filling. If you can insert oxey-chloride of zinc in the canal you may be sure no bacteria will get up that canal anyway, whatever other way it may get into the socket of the tooth. The suggestion has been made to fill the root in one way or another. I used to be credited with saying there was only one way to do it. I have tried a whole lot of ways, and I have had success with every one of them, and after all it does not make very much difference what you fill it with so long as you get the root aseptic and seal it up that way,

The treatment of some of the sequences of faulty root filling, such as abscess, or perhaps chronic abscess that cannot be cured—except by curetting the end of the root and sometimes by amputation. It is not a very difficult thing to amputate the root of one of the anterior teeth,. and it only becomes a troublesome thing when it gets to the molar region, except in the lower bicuspid region. Sometimes it is worth while to subject the patient to a rather trying operation in order to save the tooth You may thuse save the tooth, perhaps, in the mouth of a singer or some person who cannot very well spare one of the anterior teeth.

Dr. Bush, Winnipeg: The Bible says that a prophet is not without honor except in his own country, and it is with some diffidence I rise to speak to this paper, because my good friend Dr. Ross is a member of my own City, and a member of our own Association and the Club to which I belong, therefore I will not offer any criticisms of the paper so ably prepared by Dr. Ross; I will leave it with those who do not come from his own country. At the same time, I may say, I am proud to have a man from our own City of Winnipeg read a paper such as Dr. Ross has. One of the principal reasons for rising is, that a gentleman said: that the dangers in connection with sodium dioxide were greater than its advantages. Of course I can see right there at my back my Winnipeg friends smiling when I speak about sodium dioxide. I am a devoted adherent to that drug, I have used it for eight years, and I like it better now than I did seven or eight years ago. Of course it must be used with a reasonable amount of care, the same as every other method, but I have had such good results and so few bad ones, that I feel justified in my adherence to it till I find something better.

The method of sealing something in the pulp chamber is no doubt a good one. It must be, coming from so eminent a man as Dr. Buckley. At the same time, sir, in your address to-day you spoke of the difficulty of destroying micro-organisms so that they would not do further damage, and for myself, I like to go on the surgical principle of removing a septic condition as quickly as possible, and when a pulp chamber is well opened I can see very little use in the majority of cases of sealing in anything in the hope that it will successfully destroy, to the apex and maybe a little beyond it, all micro-organisms in that canal chamber. It may do so. It perhaps does in a number of cases, but I would rather see them out of it. My method is to use the sodium dioxide, get it in the powder and place a little on the slab perfectly fresh, and when the pulp chamber is perfectly open, preferably with a large excavator to avoid getting pressure on the pulp, I place a little sodium dioxide in the pulp chamber. I make no attempt to get into the canal. I leave it there for a short time and it will creep up the canal. Of course there will be great danger if you try to force it up at once, just the same as you would get very serious results from an anti-septic, such as oxygen. Then on the second application go a little further, and in a few minutes you may go further still, and in 99 cases out of 100 your pulp will come out complete. Flood the cavity with hot water, wash it out thoroughly, and you have cleaned the root canal. This method I have practised for some eight years, and wish you gentlemen to try it. Sodium dioxide is easily obtained now, it was not so easily obtained when I first started.

DR. D. D. ROSS: Mr. Chairman, I don't intend to discuss the subject. I would like to ask some of these gentlemen a question or two with regard to their treatment. When a tooth is brought to the dentist with a putrescent condition, as a rule it is sore, and it has always been a puzzle to me what was the cause of that soreness. I usually find when a canal or pulp chamber is opened and the pulp dead, there is little or no soreness; it is usually when it is closed up tight that we have soreness by percussion. Some of those gentlemen who have spoken, claim to open that pulp chamber and seal it up again. I have tried that, but I always find it gets worse instead of better. I have tried by opening that pulp chamber and leaving it open until the soreness passes away then the after treatment goes on very nicely, but as sure as I seal the cavity up while the tooth is sore, it still gets sorer. My theory is that the gases forming from the dead pulp are really the cause of the soreness at the end of the root. There is an accumulating pressure. When the pulp chamber is open, those gases are allowed to escape, and the tooth resumes its normal condition, and then you are in a position to go ahead and treat the tooth. I use treatment very much as some of the other gentlemen have spoken of, so I would like to ask them do they in every case, when they seal up that pulp chamber, and find that the soreness is relieved after sealing, and being kept sealed with formaldehyde or whatever else it be?

DR. BERWICK: I think the gentleman from Winnipeg misunderstood me. He quoted me as saying that the dangers of sodium dioxide were greater than the advantages. I said the danger of using it is so much greater in comparison with the other treatment, that I did not consider it advisable to do so, and I consider the formaldehyde a very much safer and simpler treatment. To the last speaker I would say that I seal that treatment in every such pulp that comes to my attention, and I have very little trouble with soreness afterwards. Only a few days ago I had a very typical case of a right upper molar, with reference to which the patient had been complaining of soreness for three or four days. I opened it up, and there was decided evidence of pus in the pulp chamber. I washed that out and placed a pellet of formacoid in it and sealed it up tightly. He came back in three days and he had had on pain, and all trace of odor had disappeared, and the tooth was in a comparatively healthy state. At that sitting I removed the contents from the canals, and followed the ordinary treatment with a modified form of creosol. At the end of three days the canals were in a perfectly aseptic condition. I do that in every case and very seldom have a failure.

Dr. Webster: Will Dr. Berwick make it clear what he uses when he seals? It is quite evident he believes that no soreness will continue if he seals formaldehyde. He did not tell us he would seale creosote or carbolic acid.

Dr. Berwick: I certainly would not seal anything in there that would not have the effect of transferring those noxious contents of the root mass into harmless ingredients. That is, formaldehyde is the only drug I know of that can be used in that way.

Dr. Trewin: Gentlemen, I know Dr. Webster is very tired after a hard day, but I would like to hear him give us five minutes, because I know he has made a special study of this.

Dr. Allen: I would like Dr. Webster, while he is on his feet, to explain to us how it is that those roots of molars which cannot be filled, and possibly cannot be treated, remain all right. aseptic and in good condition, and are never filled or never treated?

Dr. Webster: Gentlemen, I have nothing prepared to present at the present time. I have not been thinking of this matter in this direction at all. I should like very much to have discussed this paper, but not having anything definite, cut and dried and ready to give forth, I do not wish to undertake very much. I want to say though, if it is your pleasure, a few things. In the first place, we are all aware of the fact that it is impossible to remove all the contents of many canals. Most dentists can get most of the contents out of the large straight root canals, but few dentists can get all the contents out of fine crooked canals. If that be true, and I am sure you will agree with me, then we must take some method of treatment which will make the possibility of infection in those small root canals as remote as possible. Fortunately, there is not very much contained in fine canals to cause infection. Micro-organisms require food upon which to grow. If there is not much in the canal, then there is not likely much chance of infection. The fewer organisms, the more easily they are controlled by nature's processes at the end of the root. So that we do not fear these very fine canals as much as we would a large canal. The contents of a large canal can readily be removed. Now, let me point to the question of filling. It is just as impossible to fill those fine canals as it is to take the pulp out of them. We are not much more successful in filling than we are in removing the pulp. If we can remove the pulp we can fill readily. If we desire to put something into those canals from which we have not removed the pulp, it must be something fluid. What are the fluids which we may use? We hear of formaldehyde, which is an irritant, a very great irritant in some cases. Then would we take the chances of putting some formaldehyde into a pulp chamber of the lower first or second molar, putting gutta-percha above, or vulcanite, and giving it a squeeze in order to force the formaldehyde into the ends of those roots? I hardly think so. We must depend upon the permeation of the formaldehyde from the solution. I doubt very much whether it is wise to use formaldehyde, as is the common practice now, for filling these canals; better use some other preparation with a very small quantity of formaldehyde if you choose. Perhaps, there is nothing better as a preservative than creosote, or alum, or tannic acid. Those are the main stand-bys. Now, in whatever way you can, work those into the fine canals, and then trust for the rest. You know you have not removed the contents of the canal, but it is very small. You know you have squeezed into it a disinfectant as far as possible, and you have sealed it over with oxo-chloride of zinc.

Again, one gentleman says, if you have hermetically sealed the apex, why use oxoy-chloride of zinc to cover the sealing. I would say so, too. It is a waste of time, if you have sealed the end of the root. But, you can't do it with gutta-percha, that is the point. Then, let us cover these over with oxoy-chloride, to insure that the root canal may not become infected from the mouth, not necessarily through the general circulation, because many of our fillings leak, and the root canals become infected from the tooth.

Now, coming to the question of root canal fillings, I would suggest to use that root canal filling, which the particular case in hand demands. I do not wish to go further into the discussion of this subject, unless there is some question to be asked, because, I have not prepared anything.

Dr. Trewin: I understood you to say that you did not fear the small canals as much as the large ones, because they did not contain as many bacteria. Why is it that you often find an abscess on the buccal surface of a molar and not on the lingual?

Dr. Webster: When you get to the first molar, for example, say to the patient this was devitalized by your dentist two years ago, or seven years ago, or fifteen years ago, as the case may be. Who did it? Dr. so and so. You judge he has removed all the pulp from the lingual root, and he has tried pretty hard to get it out of the buccal. The chances are, if there is infection here it is in the buccal root. In another case who did it? Dr. so and so. If there is infection here it is in the lingual root; he didn't try to get the pulp out; he is a mummifier. The reason mostly why infection is often on the buccal side would be because the root canal on the lingual side had been filled and treated properly, while on the buccal side it has not been so. Another reason, the buccal plate is much thinner than the lingual plate, and in many cases the apex is not covered by bone at all, and if there is pressure at all from the lingual side crossing over through the crown the buccal side will be the most easily broken through, and then as soon as that happens the lingual side will be relieved.

Dr. Stevenson, Montreal: I would like to add one word to the very interesting discussion, and it might be this, that while we none of us can drill to the ends of the fine buccal roots, a great deal may be done with a little persistence and care with the very fine instruments that are now supplied us, to get into those canals a considerable distance. I know such celebrated authorities as Miller spent many years in trying to find an efficient mummifier, but we cannot soothe our conscience by using mummifiers until we have tried every means to empty those canals.

Dr. Webster: I am very glad Dr. Stevenson has seen fit to make these remarks, because as he began I was afraid some of you might think I was not intending to impress you with the idea that these root canals had to be opened up in every case that it is possible to do so. There isn't any doubt on that point. The less dead, or organic matter in any root canal, or in the body in any place, the less chance of infection.

Dr. Waldron: Following out the line suggested by our President with regard to avoiding irritation and compressing the remedy through the end of the root canal, I have been studying considerably lately to find remedies that would be most adaptable. On account of solubility, many of the remedies we have been using, such as the essential oils, if they meet with the moisture of the root, will form a gum, and I have been using for a long while now as a dressing, alcohol and camphor. Alcohol will mix with nearly everything, apparently. (Laughter). I have met with greater success from the use of a dressing of a saturated solution of camphor and alcohol than from anything else.

Dr. Whitslar: I have enjoyed the reading of this paper very much, and I wish to say it is the most logical paper I have heard in a long time on this subject. It is certainly very fine, and I want to compliment the author. I was just about to rise, when my good friend arose, to speak of alcohol myself, to say it is one of the finest antiseptics I have ever used in the root canal after all other things have been used, as a final treatment. It has not only the power of antisepsis, but it has also the power of tanning the contents of the tubuli. It is certainly a good remedy.

Dr. Clarkson: I did not have the pleasure of hearing this paper, but in speaking of medicines that should be used in root canals, there are three I think, ought to be mentioned that are worth further study. I have been using them all. One is Glutoil, which is an albuminoid of formaldehyde, possessing the advantage of not being as irritating as formaldehyde. I think, if formaldehyde is used with judgment a great deal of the irritation that is complained of can be avoided, but with the use of Glutoill that danger is greatly reduced. It is used in general surgery for dressing wounds; it is placed upon the surface of the skin; and it is recommended by those who have had experience with it, as being a very good non-irritating antiseptic. Then there is a second one, ordinary Balsam of Peru, which can be forced up some distance into the root canal and exercises considerable antiseptic power, owing to the presence of benzoic acid; it also contains resinous qualities which are precipitated when they come into contact with moisture; and the third one that I think ought to be mentioned is ferroldehyde, a solid which can be introduced into the root canals, and which breaks down more gradually, giving a prolonged action of formaldehyde, but the irritant properties are not so pronounced as in the case of formaldehyde.

Dr. Barbour: May I state a case which may emphasize what Dr. Magee has said regarding root preparation? Ten years ago, a young lady who was leaving four days afterwards for Europe unexpectedly, called upon me, and I found in a central an infected pulp which had not given trouble for a number of years. I found myself in the position where it was necessary to do something. I sterilized it immediately and filled it. That was on Friday, and on Sunday I was not surprised to hear from her, as she was beginning to suffer very severely. I asked her to come to the office, and I opened into the alveolus, trimmed to some degree the end of that root, and promised her she would have relief in an hour or two, that she would have very little swelling. I found on Monday morning it all came true. On Monday when she came she again complained of a very slight swelling and very little pain. I have practised that for a number of years and found it very effective. As we are all apt to come into contact with such cases, I would like to emphasize what Dr. Magee has said, to show how you may sometimes escape from a very unpleasant situation.

Dr. Ross: Closing. Mr. President and Gentlemen, I am sure I have enjoyed this discussion very much, and I may say in defence of the brief mention of the treatment in my paper that I considered in preparing this paper it might be possible to bring out a large volume of the different treatments that are being carried on. My object in bringing the treatment into my paper at all, which really did not call for treatment, was simply to bring out a lengthy discussion on the subject, and I am very glad that it has done so, because it has been a very profitable discussion. As regards Dr. Lester's and Dr. Berwick's discussion of the paper

I feel that there is not any responsibility now on my shoulders, Dr. Bush first relieving me of a great many things I was going to say about this famous use of sodium dioxide, and then Dr. Webster has said some other things with regard to infection, and the filling of the root, and I am sure our best authorities will vary a great deal. The method Dr. Webster has spoken of, is one I have followed, and I think it has found the most favor. There is one thing that has not been said in the discussion, in discussing very fine root canals, and that is the use of sulphuric acid for enlarging those root canals by the aid of reamers and burrs. I believe a great deal of help in filling those small canals, or in getting over future difficulties that might arise, is to be obtained by using sulphuric acid and enlarging the canal, and then treating it as you would, had the canal been larger.

THE LEGITIMATE SPHERE OF SILICITATE CEMENTS.

BY DR. S. G. RITCHIE, HALIFAX, N.S.

What is the legitimate sphere of silicate cements? More than once during the past four years, while removing the discolored and miserable remains of once beautiful and promising fillings, I almost concluded that there was no sphere, legitimate or otherwise, for them in this world, but for the time being it was a simple matter to assign a suitable one, both for them and their manufacturers, in the next.

However, it is hardly right to condemn all these products because most of them are useless. It was really through the failure of these latter in practice I got my most valuable information. Experience has taught me to accept with the proverbial grain of salt any extravagant claims on the part of the average manufacturer. With a goodly number of disastrous experiments to my credit in the mouths of unsuspecting victims, wisdom came, and the elimination of one material after another went on until the sole survivor, which gave me the most uniform and satisfactory results was reached. Even with this I take no chances. Every fresh bottle is tested for discoloration. The test, which is easy and takes up little of one's time, is well worth the trouble. A solution of Potassium Sulphide (Liver of Sulphur), is prepared. Into this, a properly mixed and hardened pellet of the cement is dropped. Any marked discoloration after twenty-four hours is sufficient to condemn the product tested. It is the part of wisdom to subject every new silicate preparation to this test, if discoloration in the mouth is to be avoided.

The chemical composition of these cements is variable. The announced statements of the manufacturers with regard thereto, are extremely vague. From unbiased analysis it may safely be concluded that silicates of calcium and aluminum form the basis of the powders, with, of course, various modifying substances, while the liquid in all cases is merely a modified phosphoric acid. The chemical reaction between powder and liquid is extremely complex and apparently indifferently well understood. The diversity of opinion is such that the famous old line—

"Who shall decide when doctors disagree"

expresses the situation admirably.

This much, however, is certain, the translucency, which constitutes the chief reason for using the silicates, depends upon the liberation of silicic acid during the chemical reaction. Silicic acid, as you probably know, is a perfectly transparent, jelly-like substance. Admixed with the oxyphosphates which are also formed, translucency is the result. Just when this translucency is at its best is the vital question. The inference seems to be perfectly justifiable, that this point is reached when the liquid has been exactly saturated with the powder. Theoretically, the amount of silicic acid set free would then be the greatest possible, and, as only a definite quantity of oxyphosphates could, and would be formed during the reaction, the ratio between the two is constant, that is, the maximum of translucency is reached.

To formulate the theory is one thing; to put it into practice is another. Nevertheless, my best results have been arrived at by sticking to the theory and trying to get as perfect neutralization as possible between powder and liquid. About three times the quantity of powder can be incorporated into a given quantity of liquid. Little by little it is drawn in, every particle being thoroughly moistened, as in a mix of plaster of paris, until the point of saturation has evidently been reached, then after rapid spatulation until no dry crystals are visible, the fairly sticky mass is ready for use.

Everything now depends on the quickness and deftness of the operator, in order that crystalization may not be interfered with by unnecessary manipulation. Taking, for example, one of the anterior teeth with the proximal contour partly gone, my technique is as follows:—With rubber-dam applied, the necessary separation obtained, and the cavity prepared, a perfectly clean celluloid strip with the necessary restoration burnished into it, is slipped between the teeth, and held lingually by the fingers of the left hand. Sufficient of the mix to fill the interior of the cavity is then carried to place with a flattened orange-wood stick, then a second amount to complete the filling is added and quickly pressed home. Tension is then put upon the strip so that it is drawn directly against the proximal and labial surfaces of the tooth, and in such a way that, while the contour is immediately restored, any excess of material is squeezed out on the lingual side. A flat burnisher used on the strip will then put the cervical and labial margins of the filling in nearly perfect condition, while by the same means, the lingual surface may be so shaped that very little work with the stone or disc will be required. Of course all this can be done in less than half the time required to tell it. A stream of hot air is now thrown on the strip, directly over the filling for several minutes to hasten crystalization, when the strip may be removed leaving a beautifully translucent surface. Fine discs or stones aided by parafine may now be used to give any necessary finishing touches, after which a coating of hot parafine should be applied, with the double purpose in view of neutralizing any surface acidity and protecting the filling from saliva during the later stages of crystalization.

I have said nothing, previously, about cavity preparation Except in certain cases where fairly strong unsupported enamel walls are left standing, I use exactly the same care and technique in this respct that I would for other materials, not only, because of the nature of the cement, but because, should it be necessary at any time to replace the filling with other material, it is a relief to know that the patient has not to undergo the strain, and the operator the labor of a second cavity preparation.

Both from the aesthetic and practical standpoint, in small and medium sized proximal, buccal and liabal cavities in the anterior teeth, a good silicate cement is usually satisfactory when properly manipulated. In selected cases, one may sometimes go still farther afield. By anchoring with oxyphosphate, headed platinum tooth pins in pits drilled near the incisal margins, I have restored a missing third of thick centrals and laterals, and after from one to two years usage the fillings still look first rate. However, certain other experimental fillings gave such poor results that I now believe the promiscuous use of silicate fillings is to be condemned, and only after the most careful consideration should they be placed other than in the proximal, buccal and labial cavities previously mentioned.

Even the best of the silicate preparations at our command is far from possessing all the desirable properties which a good cement should exhibit. In order to obtain translucency other equally important features are sacrificed. Silicic acid has no other good properties in a cement. It is not a good binder, and, according to Prof. Fleck, as a result of its presence the filling, instead of being neutral, has a prolonged acid reaction. It is hardly necessary for me to call your attention to the result of this objectionable feature.

Then again, both powder and liquid in some cases are markedly hygroscopic and there is also a tendency on the part of some powders to absorb carbon dioxide from the atmosphere; hence the implicit directions to keep the bottles tightly stoppered. Furthermore, the separation of crystalline constituents from the liquids is by no means uncommon. This feature in itself is almost enough to condemn any product. Fluids, for a reasonable time at least, should retain their original form. Uniform results are impossible otherwise. Again the lack of hydraulic properties is to be deplored.

From the aesthetic point of view, the appearance, while vastly superior to that of the ordinary oxyphosphates is by no means equal to that of porcelain, and the matching of a mottled tooth is impossible. Then again, there is the problem of discoloration, which, from the standpoint of the practitioner is probably the worst fault of them all.

What then, is the sphere of the silicate cements? Perhaps I have answered the question; perhaps, like the diplomatist, everything else. Be this as it may, permit me in conclusion to say: Study the materials; learn how to use them. Use them conservatively; they are by no means perfect. Then, if a failure does occasionally happen, don't consign the whole thing to eternal perdition, but cultivate a philosophic mind.

THE PROPER FIELD FOR PORCELAIN INLAYS.

By Dr. Harold Clark, Toronto.

Your program secretary sometime ago informed me that I was to read a paper on the subject assigned to me, and that it was to be a short one, and apparently fearing that I might overlook the instruction he appended a note reminding me that it was to be a short paper. In the full program of a convention, I appreciate the importance of avoiding prolixity and wandering, and I promise to be brief and to stick to my subject.

I am asked to suggest where porcelain inlays are indicated. I don't regard myself as enough of an authority to dogmatize on the subject, so I shall simply give my personal views, based on my own experience, and hope that they may provide a useful discussion of this important subject.

The intelligent use of porcelain inlays involves a consideration of the virtues and failings of this material—especially of its failings.

Its paramount virtue is undoubtedly its aesthetic value. More than any other material it may be made to approximate the appearance of the natural tooth. And were it not for its failings we could conceive of it becoming almost the universal filling material. In fact, it is these failings or objections that limit and determine the field for porcelain inlays.

One serious objection to these restorations is the cost. The making of a perfect inlay in porcelain consumes so much time that a large fee has to be asked for it. However, as this fact becomes an objection only where the patient's purse feels it, we shall dismiss it with this passing mention.

Porcelain is a hard, brittle, breakable material, and the best and strongest form that may be given the restoration in many situations may still leave it liable to fracture.

Porcelain inlays, like all inlays, demand that the cavity must be so formed that the inlay will "draw"—to use a moulder's expression. The form of incisors and cuspids is such that it is often difficult to give cavities this form, and at the same time provide for adequate retention. This difficulty is greater with porcelain than with gold. A gold inlay may properly have a thin or slender portion, and still be strong, while the same feature in a porcelain inlay would be a weak part and invite fracture and failure.

Whereas with the gold inlay, as soon as the cavity is formed it is necessary only to push in a piece of softened wax and fashion it to the form of the tooth, with the porcelain inlay it requires that a piece of foil 1-1,000 of an inch in thickness shall be accurately burnished over the entire cavity surface, with practically no tears, certainly none upon the cavity margins. This is a delicate, difficult and tedious part of the operation and the difficulty increases with the inaccessibility of the cavity, also with the smallness of the cavity.

These are the chief considerations that have to be taken into account in determining where porcelain inlays shall be used.

Of all cavities calling for a porcelain restoration the greatest value, perhaps, is realized in those involving the corners of incisors and cuspids. Gold fillings, either cast or malleted, in these cavities may have great utility, but are most unsightly. Recently some interesting work has been done with a combination of a cast gold inlay and silicate filling, but they are only partially successful. The best results by far are obtained from the porcelain inlay.

Another situation where porcelain is scarcely less of a boon than in the above mentioned corners is the cavity in the gingival margin of incisors, cuspids and bicuspids. Many of these cavities are round or nearly so, and with them may be classed those labial cavities or pits due to developmental defects and found nearer the incisal edge of the tooth. These rounded cavities are best cared for by those porcelain systems that provide instruments that make the cavity perfectly round, and slightly tapered like the neck of a glass stoppered bottle, and other instruments that grind a suitably colored porcelain rod or button to fit the cavity. These inlays, in my opinion, meet the requirements of the ideal filling more nearly than any other we know. Of course, gingival cavities are more frequently of the crescent form than rounded. Here the foil matrix must be resorted to.

Approximal cavities present increasing difficulties in the making of the foil matrix, and the smaller the cavity the greater the difficulty. Where the approximal cavity is situated lingually the making of the matrix is still more difficult than in the labial situation. Fortunately as the difficulties of making porcelain inlays for approximal cavities increase the objections to the other materials decrease, and porcelain gives way to silicates and gold fillings.

Where the incisal portion of an incisor or cuspid is deficient owing to arrested development, porcelain, in the form of a tip, is indicated.

Lastly there are occasional situations in bicuspids, and even in first molars, where a space mesially would expose a metal filling. Here, a porcelain inlay is often most desirable and the presence of the space facilitates the making of the matrix.

DISCUSSION.

Dr. C. A. Murray, Moncton, N.B.

Mr. President, Ladies and Gentlemen: I feel, Sir, this is an unexpected honor and pleasure thrust upon me to open this discussion on these two very instructive and well prepared papers.

"The proper field for Silicates,"
and "The proper field for Porcelain Inlays."

The proper field for these two filling materials is certainly a broad and lengthy subject for discussion, and is one no doubt on which a great many of us will have different opinions as to their proper spheres. I have not any doubt there is not a practitioner here who has not been successful with either one or the other or both of these materials, and it is equally true we have had many failures, but it is through these failures and successes that we arrive at the degree of proficiency. The more we experiment and the harder we work towards obtaining that degree of proficiency, the greater degree of success will be the result.

In regard to the subject of silicates, there has been a great many different varieties on the market, and my experience has been that of the essayist, to eliminate them all, but one, and that one is "Asher's Artificial Enamel," which is the only one I consider worth discussing. Perhaps my non-success in those that I eliminated is in my inability to manipulate them, and not in the materials. As a general rule, I think the discoloration is more the fault of the operator than that of the cement. Different operators have different ways of manipulation, hence they must have different results. What we want is to adopt a method whereby each and every one of us can get the very best results the material is capable of producing. As to the test the essayist speaks of, I have had no experience, hence, I am not in a position to give an opinion.

The chemical compound mentioned is a very intricate question, and only a chemist is capable of dealing with this phase of the question, and even the most expert chemists know very little about the subject.

The dentist's side of the question is to preserve these chemical bodies by keeping them well corked so as to take up no moisture from the air, or obtain any impurities while on the slab during the process of manipulation. In regard to the translucency, my experience has been, if I charge the liquid too heavily with the powder, a certain amount of the powder of the translucency is taken away. Great care should be exercised so as to get the proper amount of each, the proportions being as the essayist has said, about three of powder to one of the liquid.

In mixing, it is quite essential that both powder and liquid should be on the slab at the same time. Then draw a certain amount of the powder into all the liquid and so on until all the powder is absorbed and the desired constituency is reached, at the same time bringing every grain of powder into contact with the liquid so that the chemical reaction may be complete. The mass should be quite stiff and perfectly plastic and sticky.

Great importance should be attached to the proper manipulation from the time of making the mixture until the final finishing of the filling. I cannot agree with the essayist in using a flattened orange-wood stick in inserting the mixture into the cavity; the stick I think absorbs a certain amount of the moisture from the cement and cannot be thoroughly packed against the walls and margins. I should think to use the different angled bone instruments would be preferable. The best slab to use is one of heavy glass. The spatula should be non-metallic, as the powder is of a gritty formation and in mixing there is a certain amount of the metal ground off, thus not only affecting the color, but altering the chemical composition. I think an agate spatula gives the best results. One thing must be strictly observed and that is, everything must be kept perfectly clean, slab and instruments free from any previous mixture. The liquid should maintain the original form, and I understand there is a liquid on the market at the present time which will do this. I would suggest that the liquid be examined before buying and see that it is perfectly clear.

But coming to the main point of my discussion, where these fillings are indicated, I must say they cannot be relied upon to withstand the stress when exposed to incisal corners or in contour restorations of bicuspids. Silicate fillings upon occlusial surfaces chip away at the margins, under the impact of mastication, for which reason they are not indicated for this class of filling.

Experience has taught me the proper field for these fillings is on the approximate and labial sides of the anterior teeth, and when the cavities are kept perfectly dry and the cement is skillfully used and properly finished, it makes a filling that will last for a long time.

The essayist has said these fillings are by no means perfect; that is true to a certain extent, but at the same time, the same may be said of the operator who performs with this material. When a failure occurs, instead of accepting this failure as a necessary feature of our work and trying to cultivate a philosophic disposition, I believe it would be a better conclusion to "get busy" and search for the cause of this failure, and when failures occur we should try to eliminate the cause.

Our ideal in these two filling materials should be to approach nature as near as possible, and this can be done with these two filling materials if they are placed in skillful hands. The essayist on Porcelain Inlay has said, there is no material that can approximate the appearance of the natural tooth as well as the Porcelain Inlay. This is true so long as the work is done by a skillful operator, but when in the hands of an experienced bungler there is no work that looks so hideous as a poor colored and ill-fitting Porcelain Inlay. I think why Porcelain Inlay is not used more universally is because of the many failures a person is credited with when they first commence to use it. But we should not be discouraged, and should try and try until we make a thorough success of it. Our essayist says, one serious objection is the cost. I must take issue with him on this point and say, instead of it being an objection, I think it is a virtue, for we have so few operations where we can command a good stiff price, that we should cherish those we can. True there may be a limited number in the community who can afford to pay the price, but do it for these few and in time you will educate the people along these lines, and you will find patients coming to you for this work that you least expected. Where a Porcelain Inlay is indicated depends largely upon the operator. In the hands of an expert it has a very wide range. With beginners they should confine themselves to the anterior teeth. For the average operator they are indicated in nearly all the labial cavities of the laterals and cuspids in the upper and lower jaw and in the restoration of corners of the front teeth.

In selecting a cavity for Porcelain Inlay work the very best judgment, wisdom and common sense we possess should be used. Some operators take chances, hoping everything will come out all right. This I consider poor dentistry, and will leave you some day in an awkward position.

All cavities should afford the possibility of getting proper space and permit the proper preparation.

Other features of this paper might advantageously be brought out and prove interesting as well as instructive to us all, such as preparing cavity, selecting shade, making matrix, Baking, etching, and cementing, but time will not permit. I think it is a mistake to endeavour to cover so much ground in so short a time and not deal minutely with any one phase of this broad subject, for I consider books can be written and have been written on the subjects gone over here to-day.

In conclusion, let me again congratulate the essayists on their efforts, as we all have received more or less useful knowledge.

Dr. A. A. Babcock, Brantford.

There is no doubt in my mind that the compiler of the paper on this subject has voiced the sentiments, and not any too strongly at that, of many here present when he says, while he was sometimes doubtful as to the sphere of the silicate fillings, he had no doubt as to the sphere to which he would consign the manufacturer when he says his product is to be placed in all conceivable places. As it is through our failures that we learn wisdom, we must if we are to profit by our failures, classify them and distinguish those that are due to ourselves (that is faulty manipulation), and those that are due to the improper adjustment of the ingredients of a product. Now, after a few years of practice I am beginning to realize that while my intentions are good, that it is very easy for me to inadvertently make a slight mistake, which is disastrous, and also, that while the manufacturer's word must often be taken with a grain of salt, yet he is doing his best to produce for us the ideal filling, for which we are all yearning.

In order that our manipulation may not be faulty when we are trying a new mixture, it is due to the manufacturer that we follow closely his directions, of which there is usually a profusion.

I do not think as a rule you can improve upon the directions handed out by the manufacturer, although sometimes it is a little hard to take the dose, when after ten or fifteen years of mixing cements you are told you don't do it properly. So much for the manipulation.

Now, as regards the chemical combination of the mixture. First of all Dr. Ritchie tells us to test fluid for discoloration; and no doubt this is a wise precaution preliminary to using a cement, but it will in the present state in which we receive them be necessary to test them often. The manufacturers will even in some instances exchange a liquid if you have some that is old and not opened. Thus they acknowledge their instability. And thus if the liquid, which as the Dr. says is a modified form of phosphoric acid, will change chemically when hermetically sealed, what can we expect when we are frequently opening the bottle.

Giving these details and accepting the theory that these silicates of aluminum, caldum, etc., are to form the powders for us, where are we going to place this preparation when we have it mixed.

If it is translucent, insoluable, resists the force of mastication, does not alter in bulk, color or surface, has fair edge, strength and is adhesive, then in my estimation its sphere is anywhere and everywhere restoration is necessary in the form of a filling. Should you find sufficient of these properties uncertain or lacking so as to endanger the permanency of your work, then I would restrict its use to those localities where, owing to the inaccessibility of the cavity (without a considerable sacrifice of tooth structure), it was impossible to remove a matrix without distortion and the aesthetic position of the cavity required a restoration of the color of natural enamel. Just a few remarks or don'ts as regards mixing a cement. Don't unless you wish to spoil the setting, use a cold or damp slab. Many of us no doubt use a large cube of glass. We wish to mix some silicate cement. We must be careful that the surface of the slab is clean, so we go to the basin and wash off any remnants of cements of all kinds that are adhering, allowing the cold water to run freely over the glass to loosen the small particles, and the glass becomes very cold. Heat accelerates and cold retards any chemical combination, and thus we cause the trouble. I use one slab exclusively for silicate cements and give it extra attention. I prefer opal. Another thing; the silicate filling that you have to doctor with stones and vaseline or cold butter is going to discolor and disintegrate. I have tried it to my heart's satisfaction and very nearly I might say, to my soul's damnation. You must contour and finish the edges of your filling while it is plastic, and better still, if under the celluloid strip. The silicic acid or silicon which imparts to the mixture its translucency and contributes to its insolubility, is a hard crystaline curved plate, which is hard enough to scratch glass, and when broken or ground exposes a granular surface, not unlike that which is often seen in a piece of crushed mineral. Now, when you begin to grind down a filling to form it to some particular shape, often it is hard, you remove this glazed surface of the crystal, and although you use coca butter and other lubricating substances you obtain a surface that as soon as the grease has been rubbed and dissolved off in the mouth, presents once more your granular surface, its protecting glaze removed and open to receive all kinds of stains that the oral cavity may be subjected to. In its unbroken crystaline state, silicic acid crystals are insoluble in most solutions. On the other hand I have an instance in which a silicate filling is doing good service in the mouth of an inveterate tobacco chewer, and remaining comparatively free from the nicotine stain. Much more so, than the tooth in which it was inserted. This filling has been in about a year, and was burnished and moulded under a strip of celluloid.

Another thing, don't try to add a little more fluid to increase the amount of a partly mixed batch of cement. Sometimes we would like it a little thinner than it is apparently going to be with the amount of powder we have incorporated. This won't do, for you are trying to break up and start over a chemical reaction, which is really an impossibility and will result disastrously to your mixture.

Acidity reaction after six months. Different conditions under which a manufacturer experiments. A piece of mixture will remain a long time in your cabinet, but will it stay so in the mouth.

DR. RITCHIE: Mr. Chairman, I don't think there is any necessity for my saying anything further. I couldn't hear what Dr. Babcock was saying in his discussion, but with regard to Dr. Murray's discussion, he followed practically along the lines I laid down, with the exception of a few minor differences, and of course, as you know, there are always little differences that will creep in in the way of doing things; there are different ways of going about things, and of course the little minor differences do not matter very much. I thank you very much.

DR. CLARK: Mr. Chairman, I had a call from Watt's Wholesale gold man, and he said that these delicate inlays were simply a passing fad, and already there were signs of them disappearing, and there was going to be a rush for foil gold, etc., as before, and he seemed to feel I didn't take in his statement very quickly, so he pointed to the way porcelain had gone out. I took issue with him there; I maintained porcelain was still a factor to be considered, and just as we were talking, I don't know which of us was making the most ground, in walked a friend of mine who was a patient, and I was intimate enough to ask him if I might let this gentleman look into his mouth. I asked him how long ago it was that a certain inlay and a big corner on one of his centrals had been made and he said fifteen years, and this man said he wouldn't say any more. But today it made me feel that Watts' man was pretty nearly right, that porcelain must be a back number because it doesn't seem to arouse very much interest.

The last gentleman, Dr. Murray, took issue with me on considering the cost of porcelain as an objection; the very fact of its cost was a reason why we should put them in every chance we got. But the trouble is that where it costs the patient a little money it consequently costs the operator a great deal of time, and he does not come out much better in the end; as a matter of fact, my experience has been he comes out a great deal worse.

The first essayist spoke about the importance of following the rules that were given by the manufacturers with regard to silicate fillings. I have been impressed by one thing up stairs, and that is that what the clever demonstrator up there is teaching today was rank heresy a year ago, according to the demonstrator that the same company had here, so I am afraid I will have to take issue there and say we have got to make our own rules. There has been so little said about porcelain, there is nothing for me to reply to. (Applause).

WHAT USE WE ARE MAKING OF THE CASTING PROCESS.

Dr. W. R. Greene, Ottawa, Ont.

By casting process, we refer to casts made in moulds, formed by disappearing wax models, by means of pressure applied to the molten metal to force it into the mould.

This is a vast subject, and will, I am sure, bring forth considerable discussion, and many interesting and usful hints and suggestions not touched upon in this paper.

We will look at the subject under the following heads:—

1st.—The casting process as applied to gold inlay filling.
2nd.— " " " " " to crown work
3rd.— " " " " " to bridge work.
4th.— " " " " " to plate work.

The cast inlay filling has come as one of the greatest boons to dentistry of the past decade. I am a firm believer in its use as the best possible filling in a great many cavities which are presented to us for treatment. First, because it can be inserted with so little discomfort to the patient, and consequently, more pleasantly to the operator. It eliminates the necessity of the dam and lacerating ligature, and gives the patient a rest from the tedious pounding required in foil filling. Second, the presence of cement in contact with the tooth tissue is a decided advantage, as I think it will be generally admitted that cement is the most efficient tooth preserver we have, and the nicely adjusted gold inlay gives the necessary permanency lacking in the cement itself. It will also be admitted that cement is the best pulp protector we have. Third, the cast gold filling is more dense than the foil filling can possibly be, and if the cast is made of 22 k. gold, the filling is much harder than the pure gold, to withstand the severe strain required of fillings in the occlusal surfaces of teeth.

However, after all this has been said, I cannot agree with those enthusiasts who say that an inlay can and should be inserted wherever a gold filling is indicated. There still remains, and will remain, a place for the foil filling. In many cases to attempt to insert an inlay filling would necessitate the unnecessary cutting away of sound tooth tissue, and consequently making too great a display of gold.

Gold inlays are especially indicated in the cutting edges of the anterior teeth, where the posterior ones are missing, in large contour fillings, in molars and bicuspids, and they are a special benediction where the cavity exists on the labial or buccal surface and extends beyond the gingival margin, also where there is much loss of tissue from decay, and where thin but strong margins are required.

The preparation of the cavity has been so much discussed and so nicely described by Drs. Johnson, Black and others, that I think there is a consensus of opinion as to the general form of cavity, viz:— square base, walls almost parallel to each other and with the axis of the tooth, and so formed that the filling locks into the cavity when the pressure of the occluding teeth is brought to bear upon it.

The wax used is an important feature in inlay work. It should be sufficiently hard and britle that it will not change its shape, when chilled, in being removed from the cavity. Such wax must be softened in water, as the flame will only melt the surface without softening the centre.

When the cavity is formed and the wax softened in warm water and moulded between the thumb and finger to somewhat conform to the shape of the cavity, the cavity is smeared with glycerine and the wax taken from the warm water and forced into the cavity and rounded over the edges with the thumb. The patient is then instructed to bite and chew into the wax. This gives the imprint in the wax of the occluding teeth in their various positions. The wax is then carefully carved and trimmed to restore the contour, contact, grooves, etc., and smoothed by means of a pledget of cotton moistened in glycerine, and tape used proximally. The sprue wire is then heated and inserted into the wax model. The wax is now chilled, removed, invested and cast.

Where the cavity involves a considerable extent of tooth tissue, and the wax model is necessarily large, it may, and I believe should be thinned out from the back, by means of Fletcher's wax trimmer. This gives a filling just as perfectly adapted to the walls with less gold and more cement over the pulp, all of which are desirable features.

CROWN WORK.—The casting process comes to our aid again in crown work. By its use we can secure an adaptation and articulation which will satisfy the most exacting, and with a facility which will astonish.

There is no longer any necessity for the tedious building up of porcelain crowns for the anterior ten teeth, since stronger, and I believe more artistic crowns can be made by the use of detachable pin crowns, with a gold base cast about the pin, to fit accurately between the root and the crown. We all know where the weak spot is in the porcelain crowns constructed with long pin facings. No matter how careful and skillful the operator may be, there is liable to be a weakness about the platinum post, which sooner or later manifests itself by a fracture, the platinum pin acting as the line of cleavage.

To mount a detachable porcelain crown by this method, the root is prepared in the ordinary way and the crown is ground to fit the root as accurately as possible, on the labial aspect, but lingually it is well to leave space for a sufficient thickness of wax to insert the sprue wire. The pin may be either the German silver or iridioplatinum. I prefer the latter, as the gold adheres to it better, and the heat tends to take the temper from the German silver, leaving it too yielding. Melt a little wax around the pin at the juncture of the root and crown, to make sure that the wax will adhere. After smearing the root and the crown with glycerine, place the pin in position in the root, put softened wax around the pin and over the root and then force the crown to place. After trimming to suit, the whole is chilled with cold water and the crown is removed; then the pin with wax cap. The sprue wire is inserted and pin with adhering wax invested. This gives a pin with a gold cap firmly attached, which fits the root perfectly, and gives on its reverse surface an accurate seat for the crown. The result is a porcelain crown perfectly adapted to the root and not having been subjected to heat, and having no platinum baked into it. It has a strength that cannot be assured by the old method, and the artistic effect is beyond dispute.

If the root is frail and you think a band is desirable, it is easy to adjust a band to the root in the ordinary way and mould your wax into the band. The band will not likely come from the root with the pin and wax, but it has left its imprint in the wax, so it may be removed from the root and placed in its impression in the wax and invested and cast with it.

By this method, roots which are considerably hollowed out by decay, may be restored and made to support a crown. The wax which surrounds the pin may be forced into the enlarged opening in the root and when cast, forms a kind of inlay filling as well as pin. This eliminates the large quantity of cement which would otherwise be present, thus increasing the stability and permanency.

Some advocate waxing an ordinary long pin tooth or a rubber tooth, or even a diatoric tooth to a pin in place on the root, and by this means casting a richmond crown complete. This has been accomplished with apparent success, but it seems to me like inviting trouble, as small checks are bound to appear where the gold is cast against the porcelain. These checks, though unnoticed, leave a weakness which sooner or later result in the loss of the facing.

Gold Crowns.—The construction of gold shell crowns is considerably simplified by means of the casting process. The root is prepared and the band fitted in the usual manner. The band may be left long enough to almost touch the occluding teeth. After the band has been given its proper adaptation to the adjacent teeth, contoured, etc., wax is heated and forced into it, sufficient being used so that the wax stands well above the band. The patient is then instructed to bite and chew into the wax so that it receives the imprint of the opposing teeth in their various relations. The band with the wax cap is then removed, the wax is trimmed and if desired, may be built over the sides of the band to improve contour. Any peculiarity desired may be formed in the wax and will be faithfully reproduced in the cast gold. If the root is much broken down, leaving too great a thickness of wax, Fletcher's wax sucker is again brought into operation and the wax thinned out from the inside of the crown. The sprue wire is then inserted into some thick part of the wax where it will not interfere with the articulation. When the casting is complete, if there is any suspicion that the union is not perfect between the band and the cast portion of the crown, it is but the work of a minute to run a small portion of solder around. The joint is so perfect that a very small portion of solder will suffice.

These two types of crowns will, with few exceptions, meet all the requirements of ordinary practice.

By casting the cap for a gold crown, we do not require any impressions, bite, articulation, dies, swaging, etc., thus saving much time and securing better results.

We will now consider casting as applied to bridge work. For anchorage in bridge work, we have the choice of almost innumerable methods of attachment, but for all ordinary cases, the inlay, the porcelain crown with cast base, and the gold crown, will give all the anchorage required.

The inlay to support a bridge must have pins, or in the case of a dead or pulpless tooth, one good pin into the pulp chamber, and where the conditions are favorable, the inlay is preferable to the crown. The porcelain crown with gold base should have some of the porcelain ground from the side, so that the gold may extend some distance from the gum margin to allow for attachment. The gold crown when indicated makes as good an anchorage for a fixed bridge as could be desired.

After the kind of anchorage has been determined, the next consideration is the nature of the dummies to be used in replacing the lost teeth. Here, as elsewhere, in dentistry, the judgment of the operator is quite as important as his skill.

For those who believe in the saddle bridge, a very artistic and strong bridge can be made by casting the base and mounting detachable crowns.

You have your model and bite, with abutments in place. Smear the plaster model with glycerine and place sufficient wax on the cast between the abutments. Then take suitable detachable porcelain crowns, smear them with glycerine and insert iridioplatinum pins into the crowns, and force them to place in the wax. When the bite is adjusted to suit and the wax moulded into required shape, the crowns are removed, leaving the pins in the wax. Now, remove the wax with adhering pins and secure a cast in gold. The gold cast is then replaced on the model and soldered to the abutments. By soldering to the abutments after, rather than casting against them, the objectionable feature of shrinkage is largely eliminated. The porcelain is then cemented in place and not having been subjected to heat and having no platinum baked in to them, the bridge is thoroughly reliable, and I believe as sanitary as any other style of bridge.

The so-called sanitary bridge can be constructed by the casting process much quicker and with a more perfect articulation than by the old method of flowing solder. This is accomplished by building plaster on the model, between the abutments, and trimming it so as to give the required thickness of gold. Smear with glycerine and the articulation is secured directly into the wax. Removable facings should be used, as gold should never be cast against porcelain, nor even against facings protected by gold backings.

In any form of bridge, the gold part suspended between the abutments, may with advantage be formed in wax and cast.

I believe we are shortly to have a detachable pin facing on the market, which, if predictions prove true, will be the ideal facing for cast bridge work, especially in replacing the anterior teeth, where we frequently require a thin, but strong facing.

When we come to the realm of platework, the casting process is not entirely satisfactory, so far as gold plates are concerned. The gold when cast has not the temper required, and in order to have the plate sufficiently rigid, it must be too heavy.

Plates of aluminum or its alloys may be cast quite satisfactorily, as the metal may be made thick where strength is required, and aluminum is much more rigid when cast than gold. Loops or ridges may be cast on the plate for the retention of the rubber attachment. The aluminum may also be cast about gold clasps. holding them quite firmly. I would not advise casting even aluminum against the porcelain.

The range of usefulness of the casting process is as yet unknown, but it has already proven to be of very great assistance to the Dental Profession.

Anything, of which an exact pattern can be obtained in wax, may be faithfully reproduced in metal by the casting process. Any dentist who does not adopt the use of the casting process is denying himself and his patients a comfort and service which he owes. However, we must avoid running to extremes, and ever remember in all operations in dentistry, we must use our best judgment in deciding the nature of the operation and the methods to be used.

SOME THINGS IN PROSTHESIS.

By A. W. Thornton, D.D.S., Toronto.

Much is being said at the present time and much written urging the necessity of better hygienic conditions in order that the human family may make and enjoy the most and the best of life. The hygiene of the mouth, teeth and associate parts has not been overlooked, but until pain ceases to be unpleasant, and knowledge becomes universal, and a love of the beautiful is looked upon as the highest evidence of culture, just so long will people neglect their teeth, these organs will decay and be lost, either with or with-

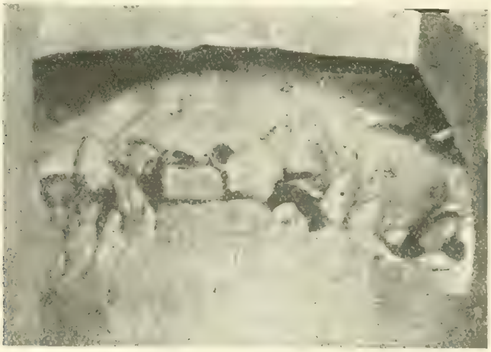


Fig. 1. Is the case of a young lady about eighteen years of age. The teeth were not only very irregular, but there had been a very marked interference with the development of the enamel on all the incisors and cuspids. The cuspids were outside the arch, and higher up in the aloevolar process than the other teeth. The molar teeth being badly broken down, the only thing to do was to restore the anterior teeth by crowning. The cuspids of necessity had to be made long to bring the incisal edge in line with the incisors, but a long upper lip, covers this defect.

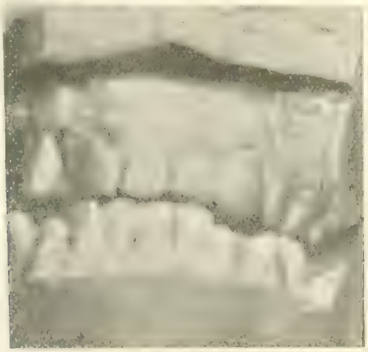


Fig. 2. Shows the restoration of the upper jaw.

out surgical intervention, and prosthetic restorations will remain a very considerable and necessary part of the work of the dentist.

In very recent times there has been a revival along the line of prosthetic dentistry and the best minds of the profession are grappling with the difficulties of this long neglected subject, and to the credit of these "seekers after truth" be it said that much is being done to remove it from the realm of a hap-hazard and undesireable field of action, and to place it upon a basis truly scientific and second in importance to no other class of dental operations. The field of prosthesis is sufficiently wide to afford scope for the greatest mechanical genius with all his varied gifts, and so diversified are the conditions presenting that no single operation could be adopted as a standard and applied without

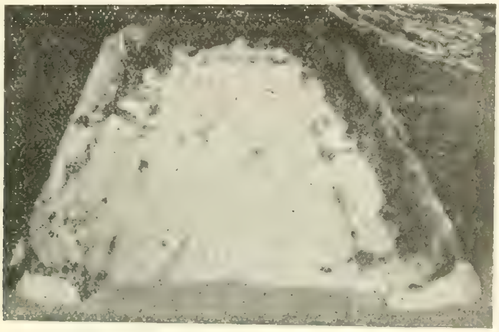


Fig. 3. A bridge had been worn, extending from the second bicuspid to the third molar. The molar was lost, and a new appliance became a necessity. A shell crown was made for the second bicuspid, and a rubber plate was made to supply the missing molars. The plate was attached to the second bicuspids by the use of a Roach attachment. A gold bar extended to the opposite side; and to the end of this a small band was soldered to clasp a bicuspid crown, which supported one end of a "hygienic" bridge. A U shaped piece of clasp metal, with one end resting on the occlusal surface of the bridge, and the other end beneath it, prevented tipping.

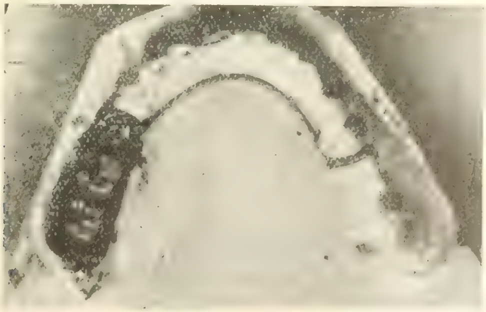


Fig. 4. Shows the piece in place.

modification to meet the requirements of any considerable number of cases.

Perhaps no improvement of recent years has been of greater value in prosthetic work than the wire connecting the lateral portions of a lower denture supplying the prosterior teeth.

I need not dwell upon the injury done to the anterior teeth by the connecting portion of such a partial lower denture as ordinarily constructed. Fitting as it usually does close to the necks of the teeth and in close contact with the gum tissue the inevitable result is recession and inflammation of the gum tissue and abrasion and decay of the teeth with which the connecting portion of the

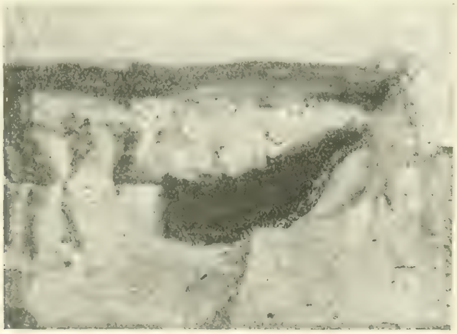


Fig. 5. Shows the "bite" with a partial upper plate, the incisors of which closed behind the anterior lower teeth, giving a bull-dog expression, anything but natural.

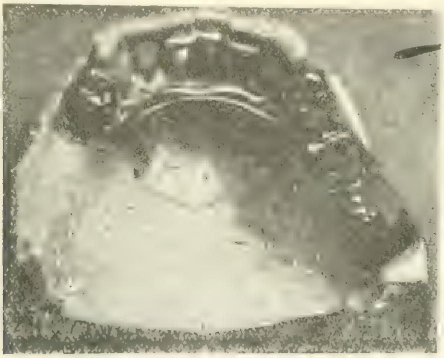


Fig. 6

Figs. 5, 6. and 7, present an interesting case. As the result of an abscess, on the left side, in the lower jaw, a strong cord-like attachment connected the cheek to the top of the alveolar ridge, making the wearing of a plate on that side, impossible. A shell crown was put on a bicuspid, on each side. A rubber plate was made, with a metal bar extending from side to side. A Roach attachment on the right side and a gold clasp on the left side, (with a spur to the occlusal surface, to prevent downward displacement), completed the lower case as shown in Fig. 6.

denture comes in contact, and as a result of these pathological conditions the premature loss either with or without surgical intervention, of these all important organs. These unfavorable conditions may be entirely obviated by using a bar of gold or iridio-platinum wire, about 14 gauge. In gold work this bar may be soldered to the two lateral portions of the plate before attaching the teeth, while in rubber work the bar may be vulcanized into the rubber and the attachment made secure by roughening the wire, by bending the ends inbedded in the rubber or by soldering to the wire some projecting points, such for instance, as the pins of broken porcelain teeth.

This wire should be placed as low as possible; not however so low as to interfere with the action of the muscles of the tongue and the lower part of the oral cavity. In fitting, it is not necessary to attempt to adapt it accurately to the model, indeed, care must be taken to avoid this and it should be kept from 1-8 to 3-16 of an inch from the plaster cast, otherwise there will be some irritation to the underlying soft tissues, which have been compressed during the process of taking the impression.

This same plan may be followed, even where one or more teeth are to be replaced between the two lateral portions. A piece of gold plate may be struck up to fit over the ridge where the teeth are to be replaced. This may be soldered to the bar, and plate teeth may be soldered to this piece of gold plate, or small loops may be soldered to it for the attachment of vulcanite.

While no hard and fast rules can be laid down governing prosthetic restorations, a few general principles may be given, some or all of which must always be borne in mind. if the best results are to be obtained. In such operations our aim should be,

1. To reduce the amount of foreign matter to the minimum.
2. To give a condition of fixity to the appliance and a sense of security to the patient.
3. To enable the patient with the least possible trouble to preserve in hygienic condition the natural organs and tissues of the oral cavity.
4. To supply an appliance that will be easily kept clean.

When we consider that the pressure which can be exerted with a denture, supported wholly by the alveolar ridges and the adjacent parts is only from 1-10 to 1-6 as great as the pressure which can be exerted by the natural teeth, we can easily understand why continuous effort has been made to use the natural teeth as supports and abutments in prosthetic restorations. It is largely because of this fact, and to meet some of the principles already enunciated, that bridge work has appealed so strongly to dentists and their patients.

In recent years many appliances have been suggested by means of which advantage might be taken of remaining natural teeth to sustain part of the pressure exerted by the jaws in mastication, and at the same time to reduce the size of the denture to the smallest possible dimensions, and also to give that fixed condition to the appliance which patients so much appreciate.

Of these appliances perhaps none are so universally applicable or so easily adjusted as the Roach attachment suggested by Dr. F. E. Roach, of Chicago. The appliance consists in brief of a ball and split cylinder. The ball at the end of a short shank fits accurately into the cylinder and one part may be permanently attached to a natural tooth by means of a crown, an inlay, a Carmichael attachment, etc., while the other may be securely fastened to the partial denture, whether made in vulcanite, gold, porcelain or aluminum.

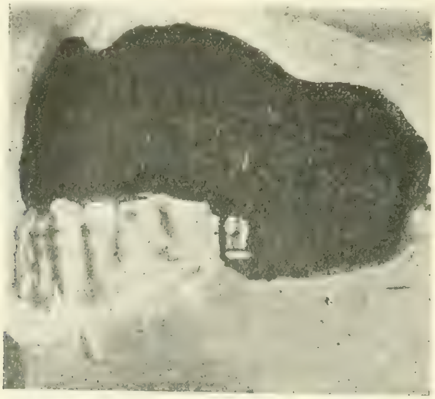


Fig. 7. Shows corrected articulation, a new plate having been made for the upper jaw

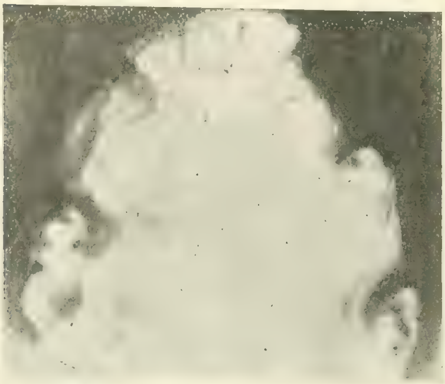


Fig. 9. Shows the model of an upper jaw, for which a gold plate was made. A Roach attachment, with a shell crown on the bicuspid; and a gold clasp on the molar, made a very firm appliance for a man over sixty years of age.

I shall not attempt a detailed description of the method of using these attachments. I shall have thrown on the screen a number of models showing some cases in which these attachments have been used and also some other cases of prosthetic restoration. The cases are some that have occurred in my practice during the last few weeks, indeed since the programme committee asked me to contribute something during this meeting. I have nursed some of these cases along so that I will have the pleasure of showing you later the finished product as worn by the patient.

Having been in communication with Dr. Roach about some other matters for the past couple of months, I suggested to him that he might send me a number of specimens of partial dentures where these attachments were used. This Dr. Roach has very kindly done and I will later on in the convention have the pleasure of showing you these pieces. You will understand that the illustrations on the screen are meant to show, not the beauty of the models, but some practical cases in ordinary every day practice. Those of you who attend conventions know how papers are sometimes padded out with obsolete or irrelevant matter and you know, too that the things which appeal most strongly to the average man are the things which he can grasp and carry away, and which suggest to him methods of procedure which he may with advantage adopt or avoid.

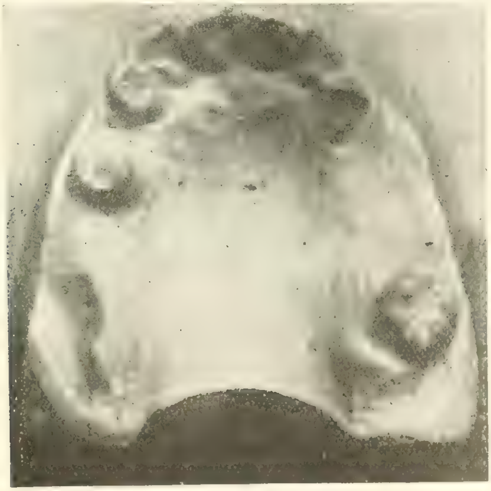


Fig. 8. Shows a model for which two bridges were made. On the right side a shell crown on the molar, and a Carmichael attachment, (cast) on the cuspid, makes a very desirable appliance. On the left side, there is a shell crown on both molar and bicuspids. A large inlay was cast for the incisor, and into this a square iridio-platinum spur fits snugly. The spur simply rests in a pit in the inlay, made to receive it, but is not attached to it in any way. This gives ample support to the anterior part of the bridge.

INVESTING AND CASTING GOLD INLAYS.

By Jos. Nolin, D.D.S., Montreal, Que.

Dr. Green has given us a noble example of what courage and ability, when they combine in the same man, may accomplish.

In accepting to write an essay on a subject which has filled thousands of pages in the dental reviews for the last three or four years; a subject thrashed out and discussed *ad nauseam* by countless *experts* at numberless dental meetings, he has shown considerable courage; while in dealing with it in such fluent and convincing style as to make every thing he describes seem plain and easy to his audience, he has given proof of no mean talent and ability.

The subject, as a whole, is covered in such masterly fashion as to leave very little unsaid.

Exception might, however, be taken to some affirmations which experience and facts seem to disprove.

Such as, for instance, the affirmation that "the waxing of a pin tooth to a pivot placed on a root, as the means of casting a Richmond Crown, is bound to invite trouble." This sounds somewhat heretical to such of us as have made a serious study of the Casting Process as applied to Crown and Bridge-Work.

I will pass around a number of Richmond Crowns, cast in this manner. Some of these have been ground so as to expose the porcelain at the most vulnerable points. All of them were cast by inexperienced students, with the crudest of apparatus (the S. S. White swagger and softened moldine), and were picked up at random, among a lot of castings made in the Technique classes of the Laval Dental School in Montreal.

My personal experience leads me to look upon this application of the Casting Process, both in effectiveness and in time saving results, as one of the greatest boons conferred on a much over worked profession by Dr. Taggartt's discovery.

If you examine some of these cast crowns, you must come to the conclusion that porcelain teeth, backed by this process, show a much healthier condition of the porcelain than is ever obtained throught the ordinary process of backing with solder.

Of course, in this, as in all other methods, proper technique conditions must be observed.

The uncertainty of what constitutes these conditions is, very likely, the main cause of the lack of enthusiasm shown by the profession for this sort of work.

It is undeniable that the casting process, as applied to bridgework, has been somewhat disappointing. The early promises of the manufacturers of casting machines have failed to materialize, inasmuch as the ordinary form of bridge-work is concerned.

Although gold can be cast on one porcelain tooth without fracture, it has been found difficult to cast at a single heating a bridge containing two or more porcelain teeth.

Why such a paradoxal statement should hold true does not seem to have attracted sufficient attention from the profession as a whole.

Does a bridge made of cast metal contract more than a soldered bridge? Who will dare say yes? Who will dare say no?

If yes is the answer, what is the cause of this greater contraction and how can it be remedied?

If the answer is No! then, why should the porcelain teeth be more apt to fracture than in a soldered bridge; in view of the fact that a single tooth can so effectively be backed by this process?

Such is the problem that faces us to-day, the solution to which, if carried to its ultimate limit, would be of incalculable value to the dental profession and the public.

It would so simplify bridge-work that it would allow dentists to make this class of work on a paying-basis, at prices more attainable to people of limited means (which means the vast majority), and thus do away with the ruthless sacrifice of thousands and thousands of sound teeth.

I have devoted a good deal of time and labor to this question, and, although I am not yet in the position to place before you a fully evolved self-acting machine or to describe a complete code of technique of a special system of cast bridge-work, I may state that I have discovered some principles of metal casting heretofore unknown as far as I am aware, and which, when understood and placed under full control will render the making bridge-work by the casting process a comparatively simple operation. These I wish to submit to this meeting with a view of:

1stly, placing myself on record.

2ndly, of opening a new field of investigation which, through the help of research committees may lead I hope in the near future to the final solution of this most interesting problem.

The modifications made to accepted methods of casting bridge-work reside,

1st in the flask.

2nd in the sprue former.

3rd in the base plate of the flask.

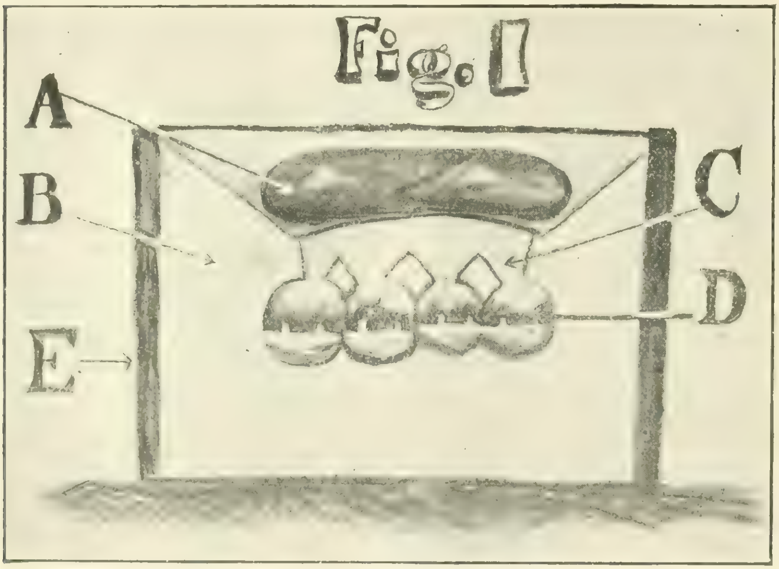
4th in the method of heating and cooling.

THE FLASK.

The flask should be an oblong cube, and of such dimensions as to allow about the same quantity of investing material around the bridge as is used in investing a bridge for the soldering method, which means a much smaller quantity of investment than is generally used. This is to allow of a better control and a more even distribution of the heat than is possible with the cylindrical flasks. (Fig 1. (c)).

THE SPRUE FORMER.

For bridges of more than two teeth the rod shaped sprue former should be discarded and replaced by a piece of metal plate, from 28 to 40 gauge in thickness, according as to whether the bridge is more or less thick. In width, it should reach to within 3-16 of an inch of each extremity of the wax bridge. Its length will be that of the ordinary sprue. (Fig.). It is inserted in the wax on or near the linguo-occlusal angle of the cusps, and a triangular piece is nipped off at each interdental space. This sprue former will leave, when removed, a slot shaped sprue divided, as it reaches the wax, into as many sprues as there are teeth to cast.



THE FLASK BASE.

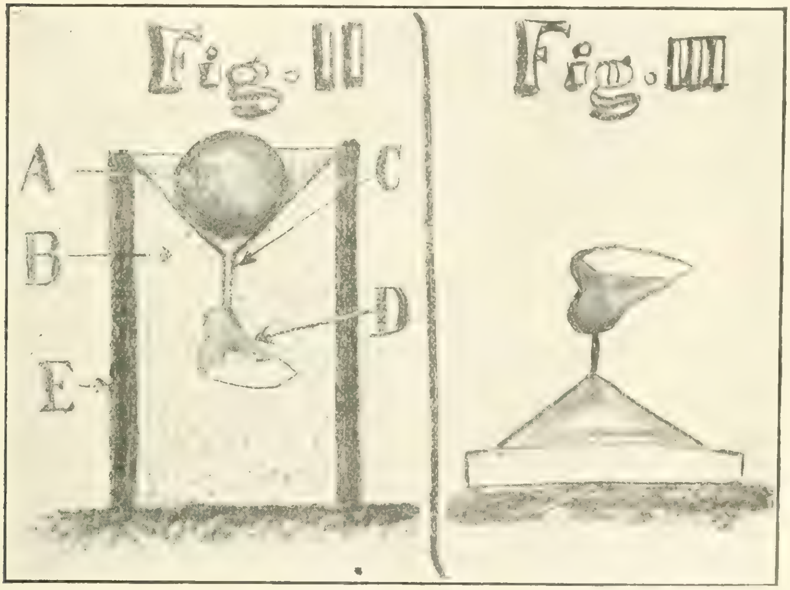
The flask base assumes the shape of a shortened and latterly elongated cow bell, (or should I say that of a roof of the Elizabethan period?) (Fig. 4), with the diedral angle at the apex showing a marked concavity. The apex is slit to admit the sprue former.

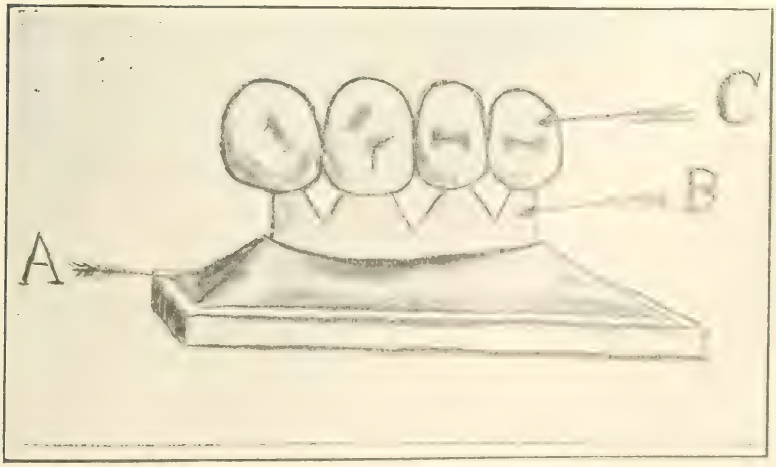
This base leaves, in the investment, a depression shaped like the inside of a hod or a trough, deeper at each end than at the centre, and, (when the sprue plate is removed), having a slot shaped opening running along the angle at the bottom. This convexity at the bottom angle allows the molten metal to spread along the whole length of the depression and to thus cover the entire slot-shaped opening. If the bottom of the crucible was straight, instead of convex, the molten metal would form into a ball, and allow the air to penetrate into the spue ahead of the metal. (Fig 5).

HEATING.

The way a flask is heated for inlay work, then placed on a cold metalic surface, then heated again, at the top only, then suddenly chilled by the contact of cold air or frozen gas, and left to cool off as best it may, would play havoc with the porcelain of any bridge, cast or soldered.

There is not a casting machine on the market to-day fit to cast bridge work with porcelain facings. But because this is so,





is no reason why we should jump at the conclusion that such a machine can not be constructed.

To be effective, such a machine would have to fulfill the following requirements:

1st. Be adapted to the use of flasks similar to those I have described.

2nd. Provide a place where the flask can be heated and the pressure applied *in situ*, without change of heat, and where the case can be allowed to cool slowly.

Some of the existing machines might, I believe, be altered to meet these requirements, and some manufacturers would confer a boon on the profession, as well as enhance their profit and loss account, by looking carefully into the matter.

I am fully in accord with the essayist on what he says about inlay and plate work, and believe he is entitled to our hearty congratulations for the able and concise paper he has given us on the casting process.

ORAL PROPHYLAXIS.

By D. D. Smith, D.D.S., M.D.

By way of preface allow me to say that it is not my purpose to bring to this Society any Munchausen tales or Cervantes romances, nor to present the vagaries of hallucinations of some dental Don Quixote in the role of mere sensationalism. I have come to study with you certain neglected conditions of the human mouth and teeth, which belong to dentistry alone; conditions that have engaged my attention with increasing interest since the first presentation of this subject before the Washington City Dental Society on the tragic night of February 15th, 1898.

An experienced novelist once said to a group of young writers, "Begin your stories well; a good beginning is half the battle." Then with a smile added—"Always bear in mind the case of the young man, who wishing to marry, secured the favorable consideration of a close-fisted old father by opening the interview with the proposition, "I know a way sir whereby you can save money."

This paper may not "begin" or continue my story "well" in the meaning of the novelist for the object is not the presentation of methods for the making or saving of money; it is rather to review present methods, which have proven inadequate for the prevention or removal of disease in the mouth and to set forth certain other methods which appeal to reason because founded on physiological states and pathological conditions. The representations embodied in this paper are substantiated by wide clinical experience and the benefits accruing therefrom have been fully demonstrated in practice.

Does anyone imagine that the prime object of dentistry in the past has been the prevention of decay in human teeth? Listen to the words and catch the spirit of two young men holding diplomas from representative schools of dentistry in the United States, one from the dental department of a leading University. "Oh! yes, Dr. Smith" said one: "I have no doubt this treatment of yours will stop decay, but if I should stop decay what am I going to do?" The other replying to the question, "What are you practising dentistry for?" Answered: "I am practising dentistry to support my family, and I can make more money filling teeth at $3.00 apiece than by trying to force your methods upon people." Could the implication be clearer or could the fact be more forcefully stated that to the ordinary young college graduate, dentistry is the filling of holes in teeth, (for a consideration). And what shall be said of teachings in schools of dentistry in which such sentiments stand forth as the foundation of a dental professional career?

One object of this paper concerns the more consistent methods of searching for the unsettled cause or causes of decay in human teeth. Like an illusive will-o-the-wisp, intelligent and satisfactory explanation of caries in the human mouth has heretofore evaded the theorist and escaped all efforts of control. It is my hope that we may uncover at least some of the myasmatic sources of this trouble, and present better methods and a more intelligent practise for its elimination. An announcement such as this may not find ready acceptance, but if it shall in any degree arrest the attention of dentistry and lead to investigation, much will have been accomplished. Investigators, theorists, have in the past labored as one who beats the air, in a fruitless search for causes. Dentistry has sought only to repair the ravages of decay. Until the promulgation of the oral prophylaxis theories there appeared no consistent effort in the line of prevention. Even this, if it shall be considered from the theoretical and commercial standpoint only, will very likely be treated as was the traveller on the Jericho road, who, falling into the hands of robbers, was wounded, dispoiled and left for dead. Priests and Levites who should have been first to his relief, passed by, but on the "other side;" but a poor Samaritan chancing that way stopped and examined; he bound up the wounds; he poured in oil and wine; he set him on his own beast and carried him to an inn, and out of the little that he had gave for his relief. I leave the parallel for your own tracing. Solemn visaged theorists, with eyes closed to rational and proven means, are passing by, *but they are on the other side,* giving no heed to the crying needs of a suffering humanity. Fearing to be regarded as "cleaners of teeth," they are scoffing at the greatest benefit to dentistry of modern times.

Dr. Kirk in an editorial in the Cosmos, declared that dental writers circle around "The Same Old Thing;" and Dr. Truman of the same College, most truthfully said, "We are, as a profession, floating in shallow water." It is certainly true that the thought and energies of the profession have centered upon the treatment of a condition. The matter of greatest concern has been filling materials, instruments and methods of manipulation with little or no attention given to causes. Dental journals are filled with matter growing out of such subjects as "Mending Vulcanite Plates," "The Use of the Rubber Dam," "Treatment and Filling of Roots," "Sterilization of Instruments," "Gold vs. Amalgam," "Professional Ethics vs. Patients," "Saving a Tooth 200 Years Ago," "Soapstone," "The Boss' Dream," "Dental Science and Literature," "Report of Committees," "Extension for Prevention," and a thousand other matters equally inconsequential, whilst they are without a page or line upon the subject which vitally concerns the health and comfort of every class and condition of humanity, namely, "The prevention of disease in and through the mouth." "Shallow water" indeed! Witness the unthinkable experiment of M. Choquet on a tooth of a sheep in an effort to induce caries. An attempt was made to confine infected bullion with cement in a made cavity in a sheep's tooth, with the result that after nine months the dentine had a tinge of yellow and was slightly softened; and this experiment (?) was accounted a proof of the inoculation theory of decay; as though there could be any anology between the human mouth and that of the herbivorous animal in the matter of tooth decay. Oh, the unspeakable simplicity of pseudo-science in its vain efforts to establish theories for decay in human teeth! What results have come from any of the unsatisfactory efforts in the past? None whatever. The substitution of simulated decay, the tooth being out of its natural environment, is wholly unavailing as a matter of scientific investigation. No reliable results can come from such experiments for all forced decay is but artificial decomposition wholly unlike true tooth decay. Teeth are the subject of true decay only when they are in the normal menstrum and temperature of the mouth. A tooth removed from jaw, even though it may have been the subject of rapid decay when in the normal menstrum and fixed temperature of the mouth, ceases all decay at once. No change similar to true decay in a tooth can be artifically produced. The one phenomenon that comes into view in all tooth decay is that true caries of the teeth is due to tooth environment; and that temperature and mouth fluids are the chief and important factors as causes. Great stress has been laid upon what may be called the chemico-bacteriological theory of Miller; but what preventive measures have come into the practise of dentistry in the light of these theories? Teachings may have been modified to a degree, but waiting for decay and tooth filling are the same as before. Mouth infection, pyorrhea and decay are as prevalent before these bacteriological theories were promulgated.

Decay in enamel has recently been shown by means of some very beautiful screen pictures made by Dr. Black, to be, possibly, somewhat different from decalcification or decay of the dentin and the profession for the moment looks up and says, "how wonderful." But does that affect the cause or treatment of decay in enamel? No one pretends that it does. However superficial or slight the decay, there is suggested but one and the same old remedy, viz., cutting out of the affected enamel and supplying filling material in its place. Dr. Black has made these pictures evidently with great care, and with great credit to himself. They show more clearly than anything heretofore presented the paramount importance of forced and frequent change of environment for the teeth, which is secured only by the prophylaxis treatment. It is admitted by Dr. Black that the real cause of enamel decay is an acid state of mouth fluids in which the teeth are constantly enveloped; as this condition cannot be reached, directly or indirectly, by any prophylactic application or medication, the Prophylaxis Treatment is the one and only resort as a preventative. Among the latest fads of dentistry we find the X-ray specialist. The work of this specialist adds very little if anything to diagnostic perception. The X-ray "treatment" for pyorrhea, which some time ago was rushed from Cleveland to be exploited in Philadelphia as a great discovery, is as yet but a dangerous force, having no apparent therapeutic value in the treatment of pyorrhea. Pyorrhea is a pathologic state which is impossible of influence for good, much less cure, without surgical treatment. The X-ray, I believe, has yet to make its first exhibit of benefit to justify its dangers in dentistry. Time would fail me to attempt discussion of the recent worse than senseless "opsonic" treatment of pyorrhea; the vaccination theory and the unreachable and harmless sulpho-cyanite of potassium (in saliva), and many others, as causes of tooth decay. These theories are so visionary and dreamlike that merely to make mention of them should be sufficient.

If, now, we have the courage to look impartially at real conditions as they exist to-day, we must admit that dentistry *at its best* has made but little progress in the last quarter of a century in preventing, not to say conquering, diseases of the mouth and teeth. Implements pertaining to the dental paraphernalia have been improved as have some filling materials (even this has been done mainly by the intervention of patentees connected with Commercial Houses), also some methods of operating as in crown and bridge work, but diseased conditions—caries, mouth infection, and pyorrhea are as prevalent to-day and as surely a menace to health as before dentistry began to boast of its great modern advancement. However, firmly engrafted the present teaching and methods of practice in dentistry may be, it is clear to the impartial observer that they are as inadequate as curatives, as they are ineffective as preventatives. The challenge that more teeth are ruined and more disease engendered through ignorant, unwarranted, sometimes malicious interference on the part of dental manipulation, than are permanently saved by an educated, intelligent, skilled practice, we believe may be successfully made.

In this connection emphatic protest should be put on record against some methods of dental practice that have found favor even with a few so-called progressive men. What is known as "Extension for prevention," had its origin in Chicago, and through the regretable zeal of Dr. Wedelstaedt there has been formed, particularly in the West, a number of Dental Clubs to extend the practise of it. This "extension for prevention" idea, as enunciated by Dr. Black, is often wholly misunderstood and as often misapplied in practise. It has engendered eroneous views; it has encouraged unwarranted and unnecessary destruction of tooth structure; it has also entailed expense, labor and suffering to patients to the prejudice of dentistry. The phrase "extension for prevention" is a "catchy" play upon words that has run wild with uncurbed mallet enthusiasm in young men of the West, and as a consequence Dental Clubs have carried the matter far beyond the bounds originally set for it. These Clubs have even encouraged the drilling out of good gold fillings "some of them very beautiful," as Dr. Wedelstaedt acknowledges, but requiring," he says, "to be replaced by fillings of a somewhat different character." What interpretation can be placed upon such a declaration except that of wanton interference with efficient fillings to satisfy a mere whim. "I have seen," he says, "no less than a hundred patients" (presumably in about one month), "for whom it will be necessary to replace a large number of fillings, and in not one case was there a practical application of the extension for prevention theory." Eighty per cent. of the dentistry of the present, if we accept the statements of this writer, is failure. I quote his words exactly as they appeared in a dental journal. "Fully eighty per cent. of the work I make is the removal of, and the replacement of poorly made fillings which have failed on account of non-extension for prevention." I unhesitatingly declare such statements gross exaggeration. To give further emphasis to the unsafe teachings of the leader of these Western Clubs, I quote further: "It is now well understood that filling material without cavity preparation is not a potent factor in saving teeth, but filling material in connection with cavity preparation is the most potent and *only one* for *intelligent* men to take into consideration in *discussing any theory relating to the care and salvation of human teeth.* Scientific men recognize this as one of the fundamental principles and the *advance and progress* of dentistry depends wholly upon the practical application of this theory."

Is it, let me ask, really so that *"scientific men"* recognize this as one of the fundamental principles and that the *advance and progress of dentistry* depends wholly upon the practical application of the "extension for prevention" theory? I charge unhesitatingly that this statement is not only misleading but that it is wholly without warrant.

I assume that the prime object of dentistry is that of benefit to the community; commercial gain to the operator should be matter of secondary consideration. I shall therefore continue the free and independent discussion of prophylaxis and other matters, assured that in the end truth will prevail. However wide the chasm between theorist and clinician in the matter of oral prophylaxis, they must ultimately coalesce in the discussion as well as the practice of this beneficent scheme, as a system of dental uplift. The trivialities and false theories of present dentistry must give place to better theories and more important subjects. Present methods, wherein mechanical repair waits for decay and disease, must surely give place to rational prevention measures.

The real possessions of dentistry reach to the care of the important organs in the very gateway to the human system, and yet dentistry itself has so circumscribed and limited its own field that, in the past and even now, it considers chiefly, I had almost said it considers only, the one disease—caries in the crowns of teeth—and he who most adroitly deals with this condition, is generally most lauded. Dentistry should, and eventually will, become the onsultant and ally of general medicine respecting mouth conditions. It will afford diagnosis and treatment in many cases of throat and lung infection, tonsilitis, troubles in the digestive tract, nerve centres, kidneys and skin. A true forward movement will not be seen until educational efforts shall reach beyond present limitations—that of mechanical repair of diseased teeth.

A blunt, but perhaps true statement was made not long ago by Dr. Talbot, to the effect that "Dentists are not readers." A partial excuse for this may be found in the fact that close application in dental practise is not conducive to investigation and study in any direction. We accept this as a reason why we cannot as dentists boast of a more valuable and scientific literature. Confined to the exacting duties of practise, the dentist becomes practically disqualified for exhaustive scientific investigation. Few men have the strength, even if they have the inclination, to engage in unrequited literary work which must be done after the office labors of the day. Hence the more gifted writers are not from the ranks of the experienced, practical men of the profession. Dental magazine editors and writers, whilst sometimes expert with the pen, are almost universally lacking in experience and observation in actual dental practises. This pertains not only to the matter in hand, but it pertains to all matters relating to dentistry. Much of our dental literature is like the water in which Dr. Truman says we, as a profession, are floating. It is unsatisfactory; it is "shallow." Text books contain much that is trivial and misleading, much that is positively harmful.

"Oral Prophylaxis" has by no means escaped the theorists' ill considered and undigested attempts at elucidation. Men have presumed both to talk and write upon this subject without any true appreciation or misunderstanding of its meaning.

That there may be no confusion of terms, no misunderstanding of meanings in this paper, allow me here to define and differentiate Oral Prophylaxis. The true meaning of prophylaxis is the warding off or prevention of pathologic or diseased states in organs and tissues through surgical rather than medical means. Prophylaxis has been and is confounded with *prophylactic,* and these terms are commonly, but improperly used interchangeably by speakers and writers. Prophylaxis is also used as a synonym for aspesis, oral hygiene, oral massage—if there be such a thing—or whatever is supposed to ward off disease in the mouth and teeth This use of prophylaxis is misleading and unwarranted.

In defining the terms prophylactic and prophylaxis we would emphasize the fact that prophylactic more generally relates to therapeutic *remedies;* remedies that may be administered as preventatives of disease. Prophylaxis relates to preventive *treatment.* Although the term prophylaxis was not used in dentistry prior to the first article on this subject, read before the north-eastern Dental Society at Hartford, Conn., in October, 1898, and published in the International Dental Journal, January, 1899, under the title "Prophylaxis in Dentistry," the dictionaries—Webster, Worcester and the Standard, then, as now, all pointed to the signification as here given.

Being the first to use the term in dentistry, we may without undue liberty apply its definition. Prophylaxis is properly defined as a treatment involving surgical manipulation, in distinction to treatment by systemic medication or therapy. Hence, oral prophylaxis is a surgical treatment of the mouth and teeth in contradistinction to local or general medication, or the use of a germacide or any local treatment.

The interdependence of medicine and dentistry will in the near future be better understood by medicine; but the recognition will not come through the mechanical restoration of decayed and broken down tooth structure however skilfully such work may be done by individual dentists; it will come through the demonstration by dentistry that it controls the way of approach to, as well as the treatment of, certain general diseases in the presence of which medicine to-day stands as it has always stood practically helpless. In illustration of this allow me to introduce here one of the most interesting cases connected with my practice. Some time ago a lady of most dejected aspect presented, recommended, as she said, by Doctor D., one of the most widely known practitioners of medicine in our city.

The history of the case is this:—

The lady was an American, just returned from a residence of about two years in Rome. The ship's surgeon to whom she applied on the return voyage was so injudicious as to say to her that she was suffering from cancer of the mouth; this of course greatly intensified her mental anxiety. Immediately upon landing she consulted one of the most prominent physicians in our city, who gave her very little comfort when he said, he could not say that her trouble was not cancerous until after a few days' treatment.

I cannot follow the lady in her visits to the eight physicians and dentists whom she consulted, none of whom offered her any relief or gave the semblance of a diagnosis. Every dentist declared her trouble to be a case for the physician, and not a condition to be at all considered by a dentist.

Examination revealed the following:—

Swollen and greatly discolored gum tissue over the whole of the incisal region of the upper jaw, beginning with the left lateral tooth and extending over the right cuspid; the gum tissue of this region was swollen and tumified, presenting an engorged mass of dark blue color, so elongated as to cover about one-half of the crowns of the front teeth. The lips were swollen and presented the appearance of a mild alveolar abscess. Along the marginal gum tissue of the entire lower jaw was a line of bright red color as of active inflammation, but without any considerable swelling. Looking further into the mouth, the tonsils were swollen to probably twice their normal size; the tongue was furred with a greenish yellow coating, parts of it about the thickness of thin blotting paper; a deep fissure extended from the base to the tip of the tongue. In the right sub-maxillary gland I found three nodules, one as large perhaps as an ordinary pea; there were nodules in the left gland not as large, but still distinctly marked. Extending over the arms and chest were irregular patches of dark pigment quite like the eruption of measles without the concentric character of that eruption. There was no fever, but great mental anxiety and nervous irritability.

The lady would sit by the quarter hour holding the upper lip off from the swollen gum tissue, "to let it cool off," as she said. The right upper central tooth was discolored to such an extent that I was unable to decide whether the pulp was devitalized or not, until I removed the remains of an approximal filling and found the pulp alive.

Now, gentlemen, what would have been your diagnosis in this case? The medical profession had given none, neither had it afforded any encouragement. Dentistry stood with folded hands in its presence, with no word of suggestion.

Instrumental examination satisfied me that the local expression as well as this whole train of constitutional disturbance—the tonsilitis, the nodular glands, the skin pigment, the extreme nervousness, the furred tongue, was due to the *ingestion* of toxins supplied from the general septic conditions of the mouth, especially that of the swollen and pyemic gum tissue.

The treatment consisted in placing all the teeth and the whole mouth in an asceptic condition, first, relieving the teeth of external deposits, on none of which were masses of solid tartar, but what was far worse, an accumulation of decomposed mucoid, viscid matter persistently excreted and inevitably held by the swollen gums in contact with the tissues where the greatest inflammation existed. This muco-purulent matter was found not only on the front teeth, but on all the teeth.

I saw this lady every day for two weeks, giving her each day the ordinary prophylaxis treatment. At each sitting I made free application of phenol sodique to the gums. I also gave her a prescription of zhongiva as a rinse for the mouth to be used four or five times a day. To relieve the tonsilitis douches of phenol sodique were given each day, and the tongue was thoroughly mopped with the same preparation. For this purpose I employed wads of Japanese absorbent paper saturated in the medicament. I also applied tincture of iodine to the swollen, discolored gum tissue at every sitting, with a view to restoration of tonicity in the capillaries.

The only constitutional treatment was an aperient to insure free movement of the bowels. I purposely avoided the use of anything that would be called "constitutional medication," that it might be made plain to the medical as well as to the dental profession, two of whom had suggested "specific" treatment, that this most serious case was of local origin and demanded local dental treatment alone.

In less than two months from the time of instituting treatment all irritation has been removed. I had restored to normal the ragged, irritating cavity margins, by placing the teeth in perfect condition with fillings and crowns. The swollen and discolored gums had returned to normal, having a beautiful pink color with restored festoons, and striations; the tonsils were reduced to normal, the nodules in the sub-maxillary gland were taken up as was the pigment in the skin. All nervous strain had disappeared and the mental condition of the patient was that of calmness and confidence.

The restoration of the mouth conditions was perfect, and the lady on leaving my office, about October 25th, said, "Dr. Smith, I consider myself perfectly well."

This, gentlemen, is perhaps the greatest achievement which I can record to the benefits of the oral prophylaxis treatment.

If time would permit, I might recite to you many cases of complete restoration and cure of alveolar pyorrhea and astomatitis. I close with the record of one other unusual case.

Some two and a half years ago a lady presented from a physician, a stomach specialist connected with one of our Universities. He sent a note saying that the lady was under his treatment for a disordered condition of the stomach and he desired her to have some artificial teeth to enable her to masticate better.

An examination of this case disclosed a fairly good set of teeth, upper and lower, but with the pyorrheatic condition about a number of them; there had been so-called dental operations, loose teeth attached to sound ones, an apology for a piece of bridge work, rendering comfortable mastication impossible, and other dental operations which placed her mouth in a most uncomfortable and unsavory condition. To me it was not a matter of wonder that the lady was suffering from stomach trouble and lack of assimilation, as it was impossible for her to masticate with any comfort, and her mouth was never free from pus and the toxins associated with pyorrheatic teeth.

Before commencing operations I replied to the physician that I found the lady's mouth in a very serious condition, but not demanding more teeth. What she needed was relief from pyorrhea and to have her mouth placed in such condition as to make mastication *with the teeth she then had* not only possible but comfortable.

He replied that he would "be glad to have her mouth in a healthy condition, of course, but *he thought* she must have more teeth for the better mastication of food;" this, however, he suggested "could be done later."

My first operation for the lady was by no means to give her "more teeth," but to relieve her of a piece of so called bridge work as well as of some natural teeth which were so loose as to preclude the possibility of restoration and were wholly preventing comfortable mastication. I discouraged all suggestions respecting artificial teeth and directed my efforts to restore to a useable condition the teeth she had. When she was able to masticate her food with comfort, which she could do in less than a week, there was no further complaint that she had not teeth "sufficient for mastication."

I have kept up the prophylaxis treatment for this lady regularly from the first, with the result that her mouth conditions are completely restored; pyorrhea has been eradicated and to-day after two years' treatment, there is entire relief from her stomach troubles and her general health is fully restored.

Enlightened, intelligent dentistry will yet supply the missing link in the medical treatment of tonsilitis, many throat and stomach troubles, indigestion, gastro-intestinal disorders, diabetes, and possibly assist in the treatment of epilepsy and cancer. In many cases these troubles are undoubtedly the direct results of pyemic states of the human mouth due to long standing septic conditions of the natural teeth.

The mouth with its large extent of dentate surface, frequently containing square inches, equal to that of an ordinary breakfast plate, becomes infested and infected with all manner of bacterial formations decomposing particles of food, stagnant, inspissated, septic matter from saliva, mucus and sputum, not infrequently with pus from irritated and inflamed gums, gaseous emanations from decaying teeth and putrescent pulps, salivary calculus (tartar), and the chemical toxins from the decomposition and the commingling of mouth secretions and bacterial growths, all maintained at the high normal mouth temperature of 96.6 degrees F. Whilst this may seem a formidable array respecting infection in the mouth, it is not an over statement; it rather fails to present sources of infection, and causes of decay inseparably connected with untreated teeth; and, incredible as it may appear, these states are found not in the lower classes only, but they are found in ordinary mouth conditions in the high as well as in the low born: in the fastidious and the boor; and yet medicine with all its acumen has never investigated or taken cognizance of these dangerous conditions.

Extract from Greensburg paper:—

"Greensburg, Pa., February 22nd, Dr. Charles C. Burhenn, a leading physician of Jeanette, died yesterday from blood poisoning.

"Several days ago while attending a child about ten years old, who had contracted diphtheria, the physician placed his finger in the boy's mouth. The little patient brought his teeth down on the doctor's finger, cutting the flesh and bringing blood. In a few hours symptoms of blood poisoning developed and the physician became very ill. Special physicians were hurried from Pittsburg, but the poison from the first seemed to have taken hold of the entire system, and in his weakened condition pneumonia set in, making the case hopeless. Dr. Burhenn was 40 years of age and was a graduate of the Western Pennsylvania Medical School."

If the above extract is a record of facts, as it seems to be, it points very clearly to the virulent infection found on teeth in certain mouths, especially in children, and strongly emphasizes the necessity of the oral prophylaxis treatment for the young. No recognition has ever been made of the fact, even by dentistry, that unsanitarized teeth, that is teeth untreated by the oral prophylaxis methods are on their surfaces virulently infectious.

Why do the great majority of the medical profession look upon dentistry as first and chiefly the work of filling decayed teeth? Is it not because our standing among the professions and in the community is gauged largely by the limited view which dentistry takes of itself? It is well known that in every conflict with medicine or surgery, even where purely dental matters only are at stake, the medical opinion is paramount. There is practically no finality in a dentist's diagnosis or decision, and yet the real possessions of dentistry embrace by right the whole of the oral cavity—the very vestibule of the human system. That dentistry has a mission peculiarly its own, a mission far higher and more helpful than merely dealing with decayed teeth, seems as yet not to have possessed those in control of our educational institutions. With them as with the rank and file it is mechanics and mechanism from the beginning of the so-called course of study to the very end of it. And this not in one college only, but it is the dominant practise in all the colleges.

Let me interpolate here that, within the last two years, four dental colleges with us have recognized in a degree the importance of mouth conditions and a chair of Oral Prophylaxis has been established in each.

The system of Oral Prophylaxis as instituted and recommended by the author, has for its aim and object not only freeing of the oral cavity from conditions that cause tooth decay, which conditions have become practically universal, but it has as the higher object the eradication of infection from the mouth, the conservation of human health and the prolongation of life.

Whether conscious of it or not, every one with natural teeth is a sufferer from mouth infection; some it is true to a much greater extent than others—the civilized more than the savage. The benefits accruing to the mouth and teeth, and thence to the general health through a consistent oral prophylaxis treatment, are very positive and plainly to be traced. In all stations and conditions where the treatment has been instituted it has demonstrated its marked sufficiency; it has also demonstrated that it is a system reasonably practical.

That theories might be verified before giving publicity to this treatment and its benefits, about four years was given to experimentation upon subjects who were under full control. The results were so uniformily satisfactory that in the beginning of the fifth year the matter was brought to the notice of the profession.

To understand the necessity for this treatment, we should understand the diseases and pathologic states heretofore unrecognized that have their origin in the bacterial infection on and about the teeth. It must also be recognized that states of the mouth and teeth, which give rise to the infection found on teeth are the direct cause of tooth decay; they are also the direct cause of all pyorrheatic conditions of the mouth and teeth.

Calcific deposits are constantly occurring and recurring, and not less the more immediately hurtful acidulated bacterial accumulations; and, more dangerous still, the nocturnal mucus appears to cement mouth debris, mucoid secretions, decomposing food particles, and other septic matter to the teeth; and all this is kept constantly at the high normal temperature of the mouth, 98.6 degrees F. Thus there is furnished by these neglected states of the mouth a most favorable media and most favoring conditions for the proliferation of germs, the fostering of systemic disease, the induction of mouth pyorrhea and caries of the teeth. Whenever the true significance of natural teeth conditions in their relations to caries and systemic infection shall be taught and understood the importance and the usefulness of dentistry, and not less the dignity and standing of the dentist will be enhanced a hundred fold.

I cannot better describe the technique of the Oral Prophylaxis treatment than as follows:—

The treatment consists of enforced radical and systematic change of environment of the teeth, and perfect sanitation for all organs of the mouth. Experience having demonstrated that the most careful and painstaking amongst patients are unable, with the agents commonly employed—as the tooth-brush and dentifrice. tooth pick and dental floss, soaps, so-called germicidal washes, or other agencies—to effect this end, the plan of forcible, frequently renewed sanitation by an experienced operator has been found indispensible. In detail, oral prophylaxis consists of most careful and complete removal of all concretions, calcic deposits, semisolids, bacterial placques, and inspissated secretions and excretions which gather on the surface of the teeth, between them, or at the gum margins; this operation should be immediately followed by thorough polishing of all tooth surfaces *by hand methods* (*power polishers should never be used*) not alone the more exposed labial and buccal surfaces, but the lingual, palatal, and proximal surfaces as well, using for this purpose orange-wood points in suitable holders, charged with finely ground pumice-stone as a polishing material. Treated in this manner the teeth are placed in the most favorable condition to prevent and repel septic accumulations and deposits, and not less to aid all efforts of the patient in the direction of cleanliness and sanitation.

In every instance in which this treatment has been instituted for the deciduous teeth, and in many cases of adults, there has been complete immunity from decay and the teeth have generally shown a marked change for the better in structural composition. Alveolar development in children has apparently been stimulated and increased to meet the requirements of the erupting teeth. The unnatural, often extreme, sensitiveness of the gums, which is always attended with congestion, purple color and marked tendency to bleed, has in every instance been completely corrected and there has been quick return to the normal low-grade sensitivity and complete restoration of the natural pink gum color, having typical striations and regular festoons. Under the stimulus of a true prophylaxis treatment, the tissues of the teeth, especially the dentin and enamel, apparently begin a change for the better. This is probably due to the stimulation of the vital forces of the pulp resulting from the treatment. This change is noticed specially in the greatly improved color and general appearance of the teeth; dull, opaque tooth-substance, often loaded with an offensive "old ivory" pigment, is transformed into clear, transparent tooth tissue, the teeth themselves assuming the appearance of living organs, each having an impressive individuality.

For thirteen years the revelations and the benefits of this treatment have been to me a constant source of surprise and delight; and with ever-increasing emphasis it is demonstrating the necessity for its adoption in all mouths having natural teeth. It seems unfortunate that so very few operators have any real information in regard to it. In illustration of this, permit me to say, I was once asked by the Committee of Arrangements having charge of the meeting at which I was to speak, if I desired "compressed air" for my clinic.

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At the close of the paper Dr. Smith gave a clinical lecture before the members present illustrating the method of operating, exhibiting the instrument best adapted for the work, and explaining the application of the remedies used, consisting of phenol sodique, zinc chlorid, concentrated zinc iodide, and a preparation for the patient, called Zhongiva.

DR. THORNTONS' DISCUSSION.

Some reference was made to the standards being established at the present time in our Dental College. I have visited a good many of the dental colleges to the south of the international line, and for nine years I have been in connection with the Royal College of Dental Surgeons of Ontario, and I want to say that the standard we try to establish with our students here is this, that their business in life is to preserve the natural organs of their patients. We try to teach them that they are being paid, not for the material used, not even for the time they spend, but for the services which they render to their patients. I believe that that standard is gradually being worked out through all dentistry on this North American continent. Some reference was made to dentists as glorified mechanics, that we spend all our time with mechanical restorations, and thank the good Lord, that is true, for we are dealing with conditions. Dentistry has been an evolution, and until we arrive at some basis upon which we may stand firmly in the way of preventive treatment our business is to attend to conditions as they are presented, and to make our patients as comfortable as possible.

Dr. Thornton closed with a eulogistic reference to Dr. Black, the Black Clubs, the late Dr. Miller and others who have advanced our methods of practise.

Dr. Lowe: Mr. President and Gentlemen, the subject of oral prophylaxis was so ably placed before you for consideration to day that I hardly feel disposed to occupy your time. I know that the gentleman who was appointed to open the discussion is in the building and will be here directly. I agree with the essayist of this morning entirely so far as his statement of the importance, the very great importance of the practice of prophylaxis is concerned. I cannot altogether agree with Dr. Smith regarding the unimportance of many other things that pertain to the practice of dentistry—the comparative unimportance. Now, if I have a word to add, it is that in my estimation the practice has not been altogether confined to manipulative methods. I even go to that extreme that I believe we can improve the environment of the teeth by insomatic medication. Dr. Smith intimated that it would have been well to have said that acid was the cause of superficial enamel decay rather than bacteria. I disagree with him on that point, if I understood his statement correctly in this regard, that bacteria are responsible for that acid which does the greatest harm; and I believe that the human mouth might be infected to double the infection which is in existence there if it was not for the fact that bacteria under certain provocation and probably for their own preservation have formed a glue-like substance which Dr. Black termed the gelatinoid plaque. I believe that glued-on bacteria from whatever source is the prime cause of superficial enamel decay. Now, the most important thing to-day is to glue them off, and Dr. Smith is the first man who ever, during my day and generation, attempted rationally to perform this operation. His methods, as we learned a number of years ago in New York State, are such that the result, to quote from Dr. Kirk, the Dean of the Dental Department of the University of Pennsylvania, is truly marvelous.

Now we have great trouble in New York State to persuade practitioners to engage in prophylaxis operations. They seem to think because they have done pretty well with the dental engine and the revolving burr, with rubber cups or discs or brushes, that they haven't any occasion to learn a new way, and they seem to entertain the idea that you must give up a very considerably greater amount of time to accomplish things if you resort to the method Dr. Smith advocates. The first operation I ever saw Dr. Smith perform was for a gentleman in New York. On that occasion he had neglected to come in promptly at the end of the month, and notwithstanding that the man had been neglectful to the extent of two weeks or more, I found Dr. Smith was able to put those teeth in perfect condition again, and my recollection of the time consumed was in the neighborhood of twenty minutes. Now I am not nearly so skilful as Dr. Smith, but I have no difficulty whatever in seeing two patients—providing, of course, they are patients who are in the habit of coming as they ought to—every hour, and sometimes I see more than two patients an hour in those mouths where the teeth are all right.

Dr. McColl: I personally do not believe that it is necessary that general practitioners should turn this practice over to a specialist. Personally, I am very heartily in accord with Dr. Smith. I myself am following oral prophylaxis as a specialty, thus putting myself in opposition to you. I have talked with a good many men about prophylaxis, and the general opinion seems to be voiced about in this manner: "That is all right, but you are not doing anything else, but I am busy, I am in general practice, and I can't take the time for it; I have got to do the work that comes to me to do." Now I want to say to you that I believe you can take the time for it, and I believe that you should take the time for it, not necessarily as a specialty. I do not believe that every one of you can get the results Dr. Smith gets without practising it to the exclusion of other branches of dentistry, or very nearly so, but I do believe every one of you will take up the ideas which have been presented to you by Dr. Smith and will apply them—don't talk about them, don't say, "I don't think I ought to do this," and, "I don't think there is any use of doing that"—apply them; go to work and do it; and if you will do that I am quite sure you will find you are keeping the mouths of your patients in much better condition than you are now, and that your patients will have, if not an entire cessation of decay, certainly less, and most assuredly less pyorrhea. I believe it is easier, from my own experience, to prevent pyorrhea than decay.

I have made use of a tartar solvent, and I am going to tell you how I use it. I do not believe in curing pyorrhea by the use of any tartar solvent or any medicament, or any instrument. If you are going to cure pyorrhea you have got to scale the roots of the teeth, and get the root surfaces smooth, and if you do that it doesn't matter much what instrument or dressing you use, you will get the result. What I use tartar solvent for is in relief of pain. That will seem somewhat paradoxical to you, any of you who have tried it, using the directions of Dr. Head, but if you will take a case in which the teeth and gums are intensely painful, in which the pain is almost that of an abscess, and apply tartar solvent under the gums, let it run under the gum by capillary attraction, just a little of it along each tooth, and let it stay there for not more than half or three-quarters of a minute at the outside, you will find it will relieve the soreness more quickly and effectively than any agent I have been able to find. You will also find it will act as a stimulant to the gum tissue. I don't use a great deal of it; four or five teeth can be handled very readily at a time, and by using proper precautions avoid burning.

The prophylaxis method I consider from my study of it to be a reproduction of the natural functions of the teeth. We know that the teeth were evolved as a special tissue for the purpose of masticating food, and we know that when teeth were evolved in the early stages of the human race that the food with which they had to contend was tough, hardened, and uncooked, and required a very considerable amount of mastication. That meant that the food brought to bear a great deal of friction on the tooth surfaces and also on the gums, and in my estimation that is the reason why this method of treatment is so markedly beneficial, simply because it reproduces artificially the friction which the teeth should be subjected to in the mastication of food, for which they were evolved.

I remember reading in a copy of the Dental Cosmos dated about the sixties, I think, an article by an observer who told us very clearly that the teeth of the succeeding generations were going to become poorer and poorer, and finally disappear entirely unless we did something to prevent it. This is the field of oral prophylaxis.

We have got to work for the future as well as the present, and our slogan has got to be prevention. We have gotten to the point where we can fill cavities pretty well. With all we can do in a reparative way, things are getting away from us, we have got to prevent trouble or we are not living up to the proper conception of our profession.

In my clinic this afternoon I had occasion to refer to the mouth wash which I use, the formula for which was given to me by Dr. Grace Rogers, of Detroit, who is a prophylaxis specialist, and while I do not believe this remedy is the same as the remedy Dr. Smith recommended to you this morning, I can state to you from experience that it is a very excellent astringent mouth wash to use in connection with prophylaxis treatment and in connection with pyorrhea treatment. Don't think I am curing pyorrhea by the use of this mouth wash. "Tincture of myrrh, 1 drachm; oil of wintergreen, 1¼ drachms; alcohol, 2½ ounces; water, 1½ ounces; zinc chloride, 8 grains." That makes about four ounces. This is a zinc chloride preparation, and is used as an astringent and as a stimulant. When I make a prophylaxis treatment I generally follow it up by applying this in full strength. I give the patients a small bottle also and direct them to use it by pouring a few drops in a little water, so that it makes the water a little bit cloudy. Being an alcoholic solution, it will precipitate a little in the water. This should never be used strong enough to burn the tongue when taken into the mouth as a mouth wash.

Dr. Caesar: Do you use it with an atomizer?

Dr. McColl: It can also be used in the spray bottle with compressed air.

It is rather hard for me to speak of this work in a way in which I feel that it will be taken up earnestly by the general practitioner. I find it is hard for the man who has not done it to get hold of it, to get anything out of it. He sees a clinic, and he sees teeth being scaled, and he has seen that before, and he sees the orangewood stick being manipulated, and he may not have seen that before, but it looks very simple. It is hard for him to realize that the use of the orangewood stick in the hand should replace the use of a brush or rubber cup in the engine. It is hard for him to understand that hand work is really essential, and yet I am very sure that if any one of you will conscientiously take up the hand work and feel the surface on which you are working you will realize that you never before knew anything about the surfaces of the teeth when you were cleaning them by any material or instrument which you could use in the engine. You cannot polish with anything that you can use in the engine and get the surface polished properly without injuring the gum. You can do it with the orangewood stick and feel that you not only reach all of those places which you were before omitting to reach, but you can tell when you have polished the tooth that you are not going to wear away any tooth surface which should be left there, and you are not going to leave any concretions, any deposit, or any mucous on that tooth surface which should be removed. I went into it myself on faith absolutely. I took up pyorrhea work on faith. The methods which I use I took up simply because I believed there was something in them, and when I came to actually do the work I found that there was. Now, get to work, gentlemen, get your orangewood sticks and use them; make up your wedge points with them and get to work and apply what Dr. Smith has told you, and I am sure that you will agree that it is something very wonderful indeed.

Dr. Sparks: If we are given to understand that it is merely the mechanical operation that is going to perform the cure, and. if so, why should this mechanical operation, this irritation, this agitation of the gum be continued time after time, month after month? We are led to suppose if a case of pyorrhea can be cured it can be cured at one sitting.

Dr. Bannerman: I would like to ask Dr. McColl how often he uses this mouth wash, astringosol?

Dr. McColl: During the treatment I recommend to my patients that they use that to rinse the mouth out with after brushing the teeth. The teeth should be brushed after every meal, which will make three times a day. After the treatment is finished, that is, in cases of pyorrhea, and the mouth is in a healthy condition I discontinue the use of astringosol. I do not believe an astringent should be used in the mouth when the gums are in a healthy condition, but during the treatment three times a day.

Dr. Garvin: It seems to me, in reply to what was said this morning, that if bridge work in the hands of the average dentist will only last three years, it is time the dental journals were devoting more time and not less to this very important subject. (Applause.) Further, in the discussion nothing has been said about the removal of cementum, which was also condemned this morning. I may say it seems to me that the work of Dr. Hartzell, of Minneapolis, should be thought of here, when he, in a scientific way, has shown that in a pyorrhea pocket there are certain branches or filaments of the dead pericemental membrance passing into the cementum of the tooth, and that the present condition, so to speak, still exists after a certain amount of deposit, or even after all of the deposit itself has been removed, and that it is advisable to remove the outer layer of cementum and leave a thoroughly polished surface. We do not expect the gum tissue to necessarily form a new attachment to that polished surface, but to get into very close contact with it, tightening over, so that an instrument can scarcely be passed up between the gum tissue and the root.

Dr. Smith: I really thought that I had presented something to the profession which might be construed as being new, but it seems from what has been said that I have not done anything new; that twenty-five years ago, long before I began with my work, this was old. I have had to meet everywhere this same kind of slur which has been thrown upon this work that this man has seen fit to present before you. "Why, yes, we have cleaned teeth for years." That is the very first opposition I met. "We know all about this subject; we have cleaned teeth for years." But, I am very thankful to say that the impression is just beginning to dawn—the idea is just beginning to permeate the profession that there is something in this matter which they have never been able to see before. Dr. McColl could not have said anything better to you than when he said, "Gentlemen, you get at it." I am not disparaging Dr. Miller. I am not disparaging Dr. Black. But what I did say is what is true, that although these gentlemen have presented their theories, and things that we would not blot out of dental literature at all, and we honor them for it—although they have presented these theories they have not given you a remedy. They have not given to the profession a remedy, not one. They have not told you anything new as to the method of prevention of decay.

It is not the prevention of extension after a tooth has decayed that I condemn, that is not it; it is because we are giving our attention to these things without looking at anything else. That is the point I would condemn. I want you to understand I am not a specialist in dentistry; I am a dentist, and I glory in it. There is not an operation that belongs to dental science that I do not think I can do; I try at least, and I have the conceit to believe that I can do it as well as any specialist that exists. I have given my best energies, perhaps, to oral prophylaxis, knowing that is to be the great relief that is to be furnished by the dental profession for the suffering of humanity from the human mouth. We talk about decay, but that is nothing in comparison with what it is going to prevent of the ills that belong to the system which originate in the human mouth. Let me tell you one thing—it is a matter of record that during that enlistment for the Boer War at a station in England 11,000 men presented themselves for service in that war, and only 3,000 were accepted—only 3,000 men out of 11,000; 8,000 men out of 11,000 rejected as being unfit to defend the British domain. It was largely through mouth conditions that these men were rejected. If these subjects had been put under prophylaxis treatment at the time that they should have been there would have been a large part of them fit to go and defend your country. The

British Government since then has appointed a commission for the purpose of investigating the physical decline of the British race. Mentally they stand at the very head. They are coming to see that the reason why they are on the dcline is because of the mouth conditions, and they will never raise the British people out of the present attitude of decline until such time as they begin to attend to the mouth conditions. The British nation since about 600, since it emerged from barbarism into a nation, has never known anything about what it is to attend to the mouth. Until you come to understand that mouth conditions are of first importance you will never raise the human race to a condition where it ought to be. Let me tell you another thing. In England, in the rural districts, they tell me that the people require about twenty-five pounds a year to live sort of respectably, to live like men, and the average wage is only about eighteen pounds. That does not give them a great deal for dentistry.

There is nothing at all that is intended to be secret about the preparation Zhongiva. Zinc chloride is the principal basis of the remedy which I use. I used it for pyorrhea long before I began to use it in connection with prophylaxis work. If the astrongosol which has been given us has an merit, and I rather think it has, it is due entirely to the zinc chloride and alcohol. The myrrh hasn't anything to do with it, and the oil of wintergreen is simply a substance to make it more pleasant in the mouth.

I am sure, from my experiments in the matter, that from 75 to 90 per cent. of all the decay that occurs in teeth can be prevented. There are absolutely no remedies which you can use to affect the acids or secretions in the mouth that cause decay. One gentleman said that there could be remedies taken into the digestive tract and into the stomach. It is an utter impossibility that anything of that kind should be discovered. You cannot control a mouth fluid which is constantly in the mouth any more than you can control the blood, not one bit, nor as readily as you can control what is in the blood; so that the only way in which you can influence the preservation of the teeth through the mouth is to keep those teeth perfectly clean, is to remove the conditions which cause the decay, and I have adopted the system of seeing my patients about once a month.

Reports.

REPORT OF THE ONTARIO EDUCATIONAL COMMITTEE.

To the members of the Ontario Dental Society.

At the last meeting of the Ontario Dental Society the following Educational Committee was appointed. Drs. W. J. Bruce, Kincardine; A. J. McDonagh, Toronto; A. A. Smith, Cornwall; Wallace Seccombe, Toronto; W. C. Davy, Morrisburg; A. E. Webster, Toronto; J. A. C. Hoggan, Hamilton; F. T. Coghlan, Guelph; R. J. Reade, Toronto.

The Committee beg to present the following report of their work.

The Committee met for organization, and elected Wallace Seccombe as chairman and R. J. Reade as Sec.-Treasurer.

There were eleven meetings held during the year. At most of these meetings all the Toronto members of the Committee were present. Dr. Hoggan attended three meetings and Dr. Coghlan one. The plan was adopted of keeping in touch with the members of the Committee by correspondence, and by having the members take up the Educational work in their local districts. The first work of your Committee was to endeavour to define the possible scope of their work, of which the following is an outline:

1. To institute lecture courses on oral hygiene and prophylaxis.
2. To send out literature on oral hygiene and prophylaxis.
3. To outline the means of personal education of patients.
4. To maintain and advance the status of the profession.
5. To devise means to take care of the teeth of the poor.
6. To advocate dental examination of the public school children.

First in Relation to Lectures on Oral Hygiene.

At the following hospitals in Toronto, lectures were given to nurses in training:—The Hospital for Incurables, lecturer, A. W. Thornton; St. Michael's Hospital, lecturer, A. J. McDonagh; The Sick Children's Hospital, lecturer, A. E. Webster. The Committee appointed to take charge of this part of the work is in negotiation with Grace Hospital, the Western Hospital, and the Toronto General Hospital, with the view of establishing in these hospitals lectures to nurses in training.

In Ottawa, a course of lectures has been given to the nurses in training, in the Protestant General Hospital; W. R. Greene was appointed lecturer. The report sent in by Mark G. McElhinney in charge of the work of your Committee in the Ottawa district says: "It was thought well to wait before negotiating with the other hospitals until we are assured of the success of the first attempt. No enlargement of the work will be attempted until next winter."

In Guelph, a course of lectures to the nurses was given in St. John's Hospital, by F. T. Coghlan.

In Niagara Falls, arrangements have been made to have a course of lectures given next fall, to the nurses in training in the Niagara Falls Hospital by Dr. Robb.

In Stratford, J. A. Bothwell reports that arrangements are under way for dental lectures to be given to the nurses in training at the Stratford Hospital. It is expected that these lectures will begin in September.

In Peterborough, W. C. Gowan reports that lectures were given in Nichol's Hospital and St. Joseph's Hospital, one lecture in each hospital, each of which was given by W. C. Gowan.

LECTURES TO NORMAL SCHOOL TEACHERS IN TRAINING.

In Ottawa the lecture was delivered to the teachers in training by Mark G. McElhinney, In Hamilton, J. A. C. Hoggan, lectured to the Normalites. In Stratford, J. A. Bothwell, gave a course of lectures to teachers in training at the Normal School, he also gave an address to the teachers of the city schools, comprising those of the public schools, and of the Collegiate Institute.

Your Committee arranged that a paper on Oral Prophylaxis be included in the programme of the Ontario Educational Association Convention at Toronto. R. G. McLaughlin, of Toronto, prepared the paper. Its publication by the Ontario Educational Association will give it wide publicity, throughout the province. J. A. Bothwell, in his report says: "I might add that about the New Year, I introduced the matter of medical examination, (which of course would include dental examination), at the School Board, and the matter is now in the hands of a special committee. As there are two members of the dental profession, Dr. Eidt and myself on the special committee, it is needless to say that the dental examination will not be neglected."

The question of Public School Inspection was also taken up with members of the Board of Education of Toronto. A system of Medical Inspection has been started in Toronto, but the appropriation was not sufficient to include Dental Inspection, though the need for Dental Inspection was recognized by the members of the Board.

The suggestion was made to your Committee that the Medical

Examiners also make the Dental Inspection, but your Committee discouraged this plan, prefering rather to have the matter stand over for a time, than to have it commenced under a system that would not be effective. The judgment of your Committee, is that the only kind of Dental Inspection that would be efficient is inspection by a dentist.

With regard to literature for distribution, the Chairman of your Committee interviewed Mr. James, the Deputy Minister of Agriculture, with regard to issuing a pamphlet of instruction for distribution in the Province. Mr. James informed the Committee that the Agricultural Department would be willing to print, at Government expense, fifty thousand pamphlets, and also illustrate them. These pamphlets will be sent to the members of the Agricultural Societies, to members of Women's Institutes, to school teachers through their inspectors, twenty copies also will be sent to each dentist. Much time of the members of the Committee was taken in constructing a suitable paper, but it is now in the hands of the Government, and will be issued in due time. There is also another pamphlet being prepared for your Committee to be published later on by the Agricultural Department.

With reference to the Ontario Agricultural College, F. T. Coghlan reports that a large number of teachers attend the College each year. Dr. Coghlan, was authorized to interview those in charge of the Agricultural Institute, with a view to having a series of lectures delivered to the students of the College.

Your Committee appointed a sub-committee to interview the authorities with regard to the feasibility of oppointing a dentist on the Normal School Staff to lecture on oral hygiene. Dr. Seccombe reports an interview with Dr. Seath. The Department is not in favor of specialists lecturing in the schools. Dr. Seath considers them too technical. Under the regulations the Science master is required to give lectures on hygiene and physiology, and thus would include oral hygiene, but the local Science master may ask a dentist to give an address. Thus the work in the Normal Schools will have to be carried on from time to time through the local men where these schools are located.

The question of certification of sickness of school teachers was brought to the attention of the Committee. It was pointed out that if a school teacher was unable to attend to her duties at school, and was forced to absent herself, owing to indisposition resulting from a diseased condition of the teeth, for example, alveolar abscess, it was necessary for her to obtain a physician's certificate of illness, although the said physician never saw the case.

In order that a dentist's certificate be accepted provision must be made in the act. The question arose regarding the scope of the work of this Committee, and was it within the province of this Committee to deal with such matters of legislation, as that being now considered. This is a matter for the Ontario Dental Association to determine.

A letter was sent to the Minister of Education with respect to this certification. A reply was received from the Department stating that the Minister was away, and that the letter was to be submitted to him on his return. Nothing has been done by your Committee, because it was not known exactly what the duty of the Committee was, with respect to these matters of legislation.

OUTLINE OF COURSE OF LECTURES TO NORMAL STUDENTS IN TRAINING.

During this year your Committee received a number of enquiries regarding the outline of the lectures to be given to Normal Students. It seemed desirable that there should be to a certain extent, uniformity in the subject matter, discussed with the students. A sub-committee was therefore, formed to outline these subjects. Owing to the late appointment of that Committee, their report has not been handed in.

THE PUBLIC LIBRARY.

The Chairman of your Committee had an interview with Mr. Locke, of the Public Library, who expressed his willingness to catalogue books on dentistry, which were of interest to the public. We are glad to be able to inform you that Guerini's History of Dentistry is now catalogued in the Public Library, in Toronto. Your Committee beg to recommend that this important work be followed up in the other libraries of Ontario. To this end the assistance of dentists throughout the Province will have to be secured. There are many Dental books of public interest that would prove of great educational value, and ought to be in the different public libraries of the Province.

THE CARE OF THE TEETH OF THE POOR.

In his report Dr. Hoggan of Hamilton, writes: "The Hamilton Dental Society had taken for their special object during the past year, the accomplishment of some care by the Municipality of the teeth of school children who were unable to afford the cost of proper dental attention, and the matter was carried to an almost successful completion, every hope being entertained that this end would be accomplished, but at the final, in consistence with the average Board of Education, the question was laid over for another year.

Your Committee feel exceedingly optimistic in regard to Public Dental Educational work in the Province. In every instance those whose interest was sought seemed to recognize the great need, and were willing to help in any possible way. In view of the combined meeting of the O.D.S. and the C.D.A. it might be well to consider the advisability of urging upon each Province the desirability of appointing an Educational Committee.

Dr. F. E. Bennett, of St. Thomas, reported verbally the progress of the Educational work begun by the Elgin Dental Society. This Society has been carrying on some excellent work including an illustrated lecture to the citizens by Dr. Noyes.

RESOLUTION RE DR. BLACK.

Resolution.—Moved by A. W. Thornton, seconded by Dr. Klotz, and wired to Dr. G. V. Black, Chicago: "The Canadian Dental Association, and Ontario Dental Society, in joint convention, by unanimous resolution of the members in accordance, wish to express to Dr. G. V. Black, greetings, and their deep appreciation of his services in the cause of Dentistry."

Reply from Dr. Black:

Chicago, Ill., June 4.—I greatly appreciate your kindly greetings, accept thanks.—G. V. BLACK.

Educational Committee of the O.D.S.—Seccombe, Reade, McDonagh, J. A. Bothwell, (Stratford), McElhinney, Coghlan, A. A. Smith, and W. C. Gowan.

Committee appointed by President of the O.D.S. to consider ways and means of looking after teeth of the poor; especially in Government Institutions.—Dr. A. E. Webster, Dr. A. W. Thornton, H. A. Clark.

Moved by Thornton and Webster: "That the Secretary write those gentlemen outside of Canada, expressing our gratitude for that which they have contributed toward the success of the present meeting."

REPORT OF DOMINION DENTAL COUNCIL, 1910.

The Council met at 11 a.m., on May 30th, and continued its sessions until Tuesday at 1 p.m.

All the representatives were prsent. Dr. H. S. Whittaker, of Edmonton, Alta., being the only change in its personnel.

The reports show a most satisfactory condition of affairs. The Council has been able to meet all expenses, and the Treasurer's report shows all bills paid, including the expenses of the present meeting. During the last period, the following examinations have been conducted, and certificates issued:

Class C., 8.
Class D., 3.
Class B., 15.

Professional examinations in class A. and B., 52.

The rating of candidates will not hereafter be published, simply the names of those who pass the examinations. Candidates may secure their marks by application to the Secretary.

Hereafter, candidates for examinations, who have passed the preliminary examination of any agreeing province, whose standard is fully equivalent to the standard set by the D.D.C., may be accepted upon presenting proper and sufficient evidence.

The D.D.C., has established a place for itself. It is unique in its constitution. The servant and creature of the agreeing provinces. No intrevent authority, yet possessing a standing and prestige that commands the attention and respect of the dental world, and whose certificate represents without question the highest qualification exacted anywhere.

It is untrammeled by restrictive Federal Legislation, but legally authorized and accepted by the incorporated dental registering body of every agreeing province. It would be hard to imagine a more happy solution of an exceedingly difficult problem.

The educational and elevating effect of the Council upon the profession has been marked. The standards, which are at once ideal, but practical, have had their effect upon the Provincial Examining Boards and have incited them to higher standards in preliminary examinations.

It has inspired an ambition in the student body of the Dominion to possess the D.D.C. certificate, which they know cannot be secured except by conformity to every detail of the requirements and examinations. It has caused the Legislature of every province that has been approached for legislation, to pause and better understand the professional status of Dental Surgery, and has been the direct means of preventing bad legislation.

The officers for the coming term are: President, Dr. J. M. Magee, St. John; Vice-President, Dr. H. R. Abbott, London; Secretary-Treasurer, Dr. W. D. Cowan, Regina.

Respectfully submitted,

FRANK WOODBURY.

EDUCATIONAL REPORT OF THE CANADIAN ORAL PROPHYLACTIC ASSOCIATION.

A. J. McDonagh, D.D.S., Toronto.

Mr. Chairman and Gentlemen:—With your kind permission I present the report of the Canadian Oral Prophylactic Association. I realize that in a report of this kind at this time, it is necessary to be brief; therefore, I will not attempt to read the letters we have received in reply, but will try and give you a digest of their contents.

At the last meeting of the Canadian Dental Association, a resolution was passed, appointing the Canadian Oral Prophylactic Association a committee to carry forward the dental education of the public throughout Canada, and also to endeavour through the local Societies to procure legislation providing for the systematic dental examination of the children attending the Public Schools.

The gathering of this information has been attended with considerable delay. We have written the Dental Societies of the different provinces asking what they have done in the matter, and proffered our help if we could in any way assist them along this channel.

Last year the local Societies of Halifax and Sydney made an examination of school children's teeth, the services being wholly voluntary, the statistics from the said examination being proof sufficient of the great need of competent supervision and instruction. The Halifax Dental Society have been at work on a booklet on this subject, for distribution among the schools, and expect shortly to have the book on Hygiene in use there revised.

The Nova Scotia Dental Association have done nothing in this line, other than asking the members of the profession to interest themselves in the matter.

Prince Edward Island Dental Association so far have done nothing towards this object as yet, but hope to decide on something definite at their mid-summer meeting.

The Province of Quebec, has not yet secured the appointment of Dental Examiners in the Public Schools. However the Montreal Dental Club had a committee appointed last March, composed of two representatives from each of the following bodies:

McGill University.
Laval University.
Montreal Dental Club.
Dental Association of Quebec.

That committee will demand an appropriation from the City when the annual appropriations are made in June, and they have reason to believe that the grant will be made. If they are successful, their desire is to appoint two dentists, who will be sufficiently remunerated to be willing to give up all their time during school hours to the work.

We have not up to date received any report from the New Brunswick Dental Society.

In the new Province of Alberta, the School Board is about to appoint a Medical Health Officer, and the Dental Association hope to co-operate with him.

The British Columbia Dental Association as a body do nothing toward educating the people to look after their teeth, nor have they taken any action to have the teeth of school children systematically examined. Individually, the Dentists are doing good work along these lines. The Provincial Laws of British Columbia call for the School Trustees to appoint a Health Officer, among whose duties is the inspecting of the teeth of school children once a year, and which has been done in Victoria.

The Canadian Oral Prophylactic Association have laboured steadily and made good progress in the educational side of their work. This year, under their seal, "STOMAFULAKOMA," "We stand guard over the mouth,'' the Society has published a pamphlet written by Dr. Geo. Grieve, on ''Care of the Teeth.'' The Educational Department of the Province has highly approved of this pamphlet and has agreed to send out ten thousand copies to the teachers of the Province. The Association intends to distribute twenty-five thousand more among the educated people of the provinces, the physicians, lawyers, clergymen and dentists.

We have now under construction a paper on the importance of the sixth year molar which will shortly be followed by other pamphlets of interest on subjects of similar nature.

The history of the action of the Canadian Oral Prophylactic Association in regard to the new book on Hygiene is now public property and there is no need to deal further with that question.

It had been planned by the Canadian Oral Prophylactic Association to arrange for lectures for the teachers of Normal Schools, Agricultural Societies, Hospitals, Public Schools and in fact, all gatherings where a number of intelligent people could be addressed. But the Ontario Dental Association has helped us out in that work for the present at least, by appointing the Ontario Educational Committee, which is working in harmony with the Canadian Oral Prophylactic Association; as the President of the Canadian Oral Prophylactic Association is a member of that Committee.

We would like to have many more Associate Members, particularly in the Provinces outside Ontario, as through their cooperation we could do a great deal of good. Our Secretary will be glad to enroll any ethical dentist as an Associate Member.

Dr. Seccombe, who is Chairman of the Ontario Educational Committee, will give you a full report of its accomplishments.

Members Present.

DENTISTS IN ATTENDANCE.

Eudore Dubeau, Montreal, Que.; D. N. Stewart, Hamilton, Ont.; W. C. Wickett, North Bay, Ont.; J. S. Bagnall, Charlottetown, P.E.I.; J. G. A. Gendreau, Montreal, Que.; N. A. Gumear, Kincardine, Ont.; J. M. McCullough, Perth, Ont.; W. S. French, Amherstburg, Ont.; A. V. Summers, New Liskeard, Ont.; J. N. Dunning, Wallaceburg, Ont.; I. J. Wigle, Tottenham, Ont.; W. G. L. Spaulding, Toronto, Ont.; C. Harold Clarkson, Toronto, Ont.; Wallace Seccombe, Toronto, Ont.; F. A. Harwood, Montreal, Que.; E. L. Brereton, Barrie, Ont.; A. McElhinney, Ottawa, Ont.; Phillipe Hamil, Quebec, Que.; Arthur Langlois, Quebec, Que.; R. A. Woollett, Montreal, Que.; J. A. Bothwell, Stratford, Ont.; W. Revell, Windsor, Ont.; A. T. Morrow, Maxville, Ont.; G. E. Ritchie, Halifax, N.S.; A. G. Campbell, Wallaceburg, Ont.; S. J. Bloomfield, Sherbrooke, Que.; H. E. Morris, Picton, Ont.; J. A. Thompson, Havelock, Ont; D. Baird, Uxbridge, Ont.; J. G. Roberts, Edmonton, Alta.; F. A. Stevenson, Montreal, Que.; J. D. Maher, St. John, N.B.; G. F. Roulston, Exeter, Ont.; G. K. Thomson, Halifax, N.S.; W. C. Oxener, Halifax, N.S.; C. F. Morrison, Montreal, Que.; D. J. Berwick, Montreal, Que.; H. B. Rickard, Port Colborne, Ont.; F. S. Loucks, Clarksburg, Ont.; W. R. Green, Ottawa, Ont.; W. A. Cowan, Toronto, Ont.; C. H. Juvet, Ottawa, Ont.; A. E. Webster, Toronto, Ont.; H. A. Clark, Brockville, Ont.; H. F. Whittaker, Edmonton, Alta.; F. W. Wright, New Glasgow, N.S.; A. V. Lester, Hamilton, Ont.; V. E. Hart, Lindsay, Ont.; G. W. Everett, Hamilton, Ont.; G. T. Ives, Lethbridge, Alta.; H. M. Sanderson, Toronto, Ont.; R. MacFarlane, Berlin, Ont.; W. C. Gowan, Peterboro', Ont.; F. C. Bonnell, St. John, N.B.; C. A. Murray, Moncton, N.B.; J. A. C. Hoggan, Hamilton, Ont.; L. J. B. Fasken, Regina, Sask.; G. T. Marrs, Paisley, Ont.; C. S. McArthur, Truro, N.S.; A. J. McDonagh, Toronto, Ont.; F. E. Bennett, St. Thomas, Ont.; H. H. Way, St. Thomas, Ont.; C. S. McComb, Blind River, Ont.; E. M. Fulton, Hamilton, Ont.; A. H. Pratt, Kemptville, Ont.; S. E. Foster, Wiarton, Ont.; J. A. Butler, Cookshire, Que.; S. M. Thomas, London, Ont.; J. A. Fleming, Prescott, Ont.; G. H. McKeown, Winchester, Ont.; F. Hansel, Hamilton, Ont.; T. N. McGill, Toronto, Ont.; H. A. McKim, Cobourg, Ont.; R. M. Chambers, Leamington, Ont.; G. F. Elliot, Petrolia, Ont.; H. R. Clark, New Market, Ont.; J. S. Somerville, Niagara Falls, Ont.; J. A. Shannon, Sault Ste. Marie, Ont.; S. M. Kennedy, London, Ont.; Ghent Wilson, Toronto, Ont.; A. W. Thornton, Toronto, Ont.; G. J. Gibb, Blenheim, Ont.; W. C. Trotter, Toronto, Ont.; B. W. Linscott, Brantford, Ont.; G. V. Allen, Mount Forest, Ont.; W. C. Pickering, Durham, Ont.; T. E. Ball, Harriston, Ont.; M. J. O'Callaghan, Prescott, Ont.; J. H. Irwin, Collongwood, Ont.; A. A. Smith, Cornwall, Ont.; G. F. Belden, Toronto, Ont.; F. C. Vanduzer, Toronto, Ont.; H. W. Reid, Toronto, Ont.; M. A. Day, Belleville, Ont.; G. W. Bald, Sault Ste. Marie, Ont.; W. M. Wunder, Toronto, Ont.; R. M. Armstrong, Oshawa, Ont.; W. H. Coon, Midland, Ont.; H. E. Eaton, Toronto, Ont.; H. O. Richardson, Campbellford, Ont.; M. A. R. Thomas, London, Ont.; H. G. Robb, Niagara Falls, Ont.; A. F. Dyer, Indian Head, Sask.; C. R. Campbell, Whitewood, Sask.; A. A. Babcock, Brantford, Ont.; G. E. Hill, Toronto, Ont.; E. W. Sisson, J. A. McArthur, Priceville, Ont.; J. E. Rhind, Toronto, Ont.; R. G. McLaughlin, Toronto, Ont.; A. J. Brown, Mitchell, Ont.; C. B. Dorland, Oakville, Ont.; J. J. Loftus, Toronto, Ont.; W. J. Garland, Cobourg, Ont.; H. Wightman, Peterboro', Ont.; D. W. Massey, Brighton, Ont.; S. L. Frawley, Toronto, Ont.; H. E. Beddingfield, High River, Alta.; W. Buchannan, St. Catharines, Ont.; Josephine Wells, Toronto, Ont.; H. L. Belcher, Seneca Falls, N.Y.; G. A. Bentley, London, Ont.; E. Hart, Brantford, Ont.; W. E. Willmott, Toronto, Ont.; J. B. Willmott, Toronto, Ont.; W. J. Woods, Toronto, Ont.; O. H. Peaker, Brampton, Ont.; W. A. Brownlee, Grimsby, Ont.; R. J. McGahey, Toronto, Ont.; M. H. Garvin, Winnipeg, Man.; H. W. Kalbfleich, Elmira, Ont.; F. D. Price, Toronto, Ont.; Frank Woodbury, Halifax, N.S.; W. H. Bowles, Winnipeg, Man.; Miss M. A. Hanna, Kemptville, Ont.; A. J. Broughton, Toronto, Ont.; S. Eckel, Waterloo, Ont.; M. B. Mallory, Toronto, Ont.; W. A. Mathison, Port Rowan, Ont.; C. H. Waldron, Toronto, Ont.; J. S. Chambers, Toronto, Ont.; R. J. Vance, Waterdown, Ont.; E. A. Grant, Toronto, Ont.; P. Proudfoot, Russell, Ont.; W. T. Willard, Toronto, Ont.; H. N. Wilkinson, Newmarket, Ont.; F. N. Badgley, Toronto, Ont.; E. L. Gausby, Toronto, Ont.; M. R. Billings, Cayuga, Ont.; C. E. Brooks, Toronto, Ont.; G. W. Greive, Toronto, Ont.; T. A. Currie, Toronto, Ont.; O. A. Watson, Campbellford, Ont.; W. A. Black, Toronto, Ont.; W. L. Chalmers, Alexandria, Ont.; F. G. Henry, Delhi, Ont.; R. Meek, Orangeville, Ont.; C. E. Pearson, Toronto, Ont.; W. A. McLean, St. Catharines, Ont.; J. H. Simpson, Trenton, Ont.; J. Frank Adams, Toronto, Ont.; Harold Clark, Toronto, Ont.; J. G. Roberts, Brampton, Ont.; Arthur Day, Toronto, Ont.; Jas. M. Magee, St. John, N.B.; Jas. Bansley, Toronto, Ont.; W. T. Hayden, Goderich, Ont.; J. P. Maclachlan, Toronto, Ont.; J. A. Brett, Toronto, Ont.; H. A. Hoskin, Toronto, Ont.; W. T. Jeffs, Dresden, Ont.; G. S. Cæsar, Toronto, Ont.; W. R. Glover, Kingston, Ont.; H. R. Abbott, London, Ont.; J. S. Grant, Durham, Ont.; P. E. Clarkson, Toronto, Ont.; H. E. Klinger, Toronto, Ont.; F. R. Watson, Georgetown, Ont.; E. C. Jones, Toronto, Ont.; G. F. Bush, Winnipeg, Man.; A. H. Allen, Paisley, Ont.; J. A. Bothwell, Toronto, Ont.; F. R. Mallory, Toronto, Ont.;

L. I. Mills, Southampton, Ont.; D. N. Ross, Winnipeg, Man.; H. A. Semple, Toronto, Ont.; A. W. McGregor, Arnprior, Ont.; S. C. Wilson, Perth, Ont.; Guy G. Hume, Toronto, Ont.; A. D. A. Mason, Toronto, Ont.; J. G. Adams, Toronto, Ont.; W. H. Whitslar, Cleveland, Ohio; J. W. Coram, Toronto, Ont.; E. Kelly, Hamilton, Ont.; Arthur Ellis, Toronto, Ont.; G. F. Gilroy, Toronto, Ont.; E. F. Risdon, Toronto, Ont.; Wm. J. Lea, Vancouver, B.C.; H. S. Reynolds, Picton, Ont.; W. D. Cowan, Regina, Sask.; E. C. Murray, Flesherton, Ont.; C. E. Scott, Toronto, Ont.; W. E. Cummer, Toronto, Ont.; E. F. Arnold, Toronto, Ont.; W. C. Smith, Welland, Ont.; E. W. Hosinger, Barrie, Ont.; J. W. Armstrong, Toronto, Ont.; Jos. Nolin, Montreal, Que.; C. F. Walt. Sterling, Ont.; A. Beauchamp, Montreal, Que.; G. M. Trewin, Oshawa, Ont.; T. C. Trigger, St. Thomas, Ont.; C. H. Zeigler, London, Ont.; C. E. Sutton, Toronto, Ont.; A. R. Kinsman, Exeter, Ont.; G. W. Howden, Watford, Ont.; D. J. Brass, Hanley, Sask.; M. J. Clarke, Belleville, Ont.; J. L. Anderson, Waterford, Ont.; W. H. Doherty, Toronto, Ont.; Thomas Henderson, Toronto, Ont.; A. A. Smith, Toronto, Ont.; J. A. Slade, Toronto, Ont.; C. C. Nash, Kingston, Ont.; R. R. Ross, Seaforth, Ont.; W. J. Loftus, St. Catharines, Ont.; J. J. Kerr, Cobourg, Ont.; F. L. Follick, St. Mary's, Ont.; H. J. Kennedy, Ailsa Craig, Ont.; F. A. Sellary, Hensall, Ont.; C. O. Beam, St. Catharines, Ont.; F. Kilmer, St. Catharines, Ont.; Geo. Hicks, Watford, Ont.; R. M. Stewart, Markham, Ont.; F. W. Barbour, Fredericton, N.B.; J. W. Moore, St. Stephen, N.B.; R. T. Kenny, Toronto, Ont.; R. J. Husband, Hamilton, Ont.; E. A. Peaker, Toronto, Ont.; W. S. Westland, London, Ont.; A. W. Winnett, Kingston, Ont.; D. M. Mitchell, Fort William, Ont.; W. R. Marshall, Toronto, Ont.; E. C. Veitch, Toronto, Ont.; W. B. T. Amy, Toronto, Ont.; J. E. Black, Toronto, Ont.; W. D. Staples, Hanover, Ont.; A. H. Mabee, Gananoque, Ont.; F. J. Capon, Toronto, Ont.; W. A. Armstrong, Ottawa, Ont.; F. Frank, Orangeville, Ont.; R. A. Willmott, Strathroy, Ont.; F. C. Becker, Toronto, Ont.; L. Gerald Smith, Toronto, Ont.; T. W. Halloway, Peterboro', Ont.; Carl. E. Klotz, St. Catharines, Ont.; J. F. O'Flynn, St. Catharines, Ont.; J. J. Brown, Woodstock, Ont.; T. F. Perkins, Grand Valley, Ont.; L. E. Stanley, Ottawa, Ont.; T. F. Campbell, Galt, Ont.; A. E. Santo, London, Ont.; O. A. Marshall, Belleville, Ont.; H. J. M. Bannerman, Owen Sound, Ont.; J. H. Locheed, Hamilton, Ont.; A. C. Burnett, Hamilton, Ont.; H. M. Morrow, Hamilton, Ont.; M. P. Corrigan, Strathroy, Ont.; A. Shaver, Brockville, Ont.; H. W. Brace, Brockville, Ont.; J. C. Devitt, Bowmanville, Ont.; C. N. Simpson, Port Arthur, Ont.; W. A. Sangster, Port Perry, Ont.; B. E. Brownlee, Mount Forest, Ont.; G. T. Kennedy, St. Thomas, Ont.; W. C. Davey, Morrisburg, Ont.; W. A. Fleming, Alliston, Ont.; F. A. French, Renfrew, Ont.; D. D. Smith, Philadelphia, Pa.; R. G. McLean, Toronto, Ont.; C. A. Terry, Huntsville, Ont.; L. N. Lemieux, Quebec, Que.; T. W.

Caldwell, Yorkton, Sask.; W. J. Norris, Brantford, Ont.; A. Jemison, Millbrook, Ont.; J. S. Somers, Toronto, Ont.: F. J. Stowe, Toronto, Ont.; C. V. Wallace, Toronto, Ont.; J. R. McGregor, Elora, Ont.; H. W. Hartman, Meaford, Ont.; A. E. Knapp, Kingston, Ont.; E. J. Hambly, Toronto, Ont.; J. P. Marshall, Toronto, Ont.; W. W. Thornton, Dresden, Ont.; M. S. Hawkins, Port Hope, Ont.; F. L. Dayment, Buffalo, N.Y.; J. B. Morrison, Montreal, Que.; Wm. Watson, Montreal, Que.; G. W. S. Cameron, Montreal, Que.; E. Lemieux, Montreal, Que.; E. Zinkan, Toronto, Ont.; C. Colter, Toronto, Ont.; J. S. Grassie, Welland, Ont.; C. N. Abbott, London, Ont.; M. F. Cross, Ottawa, Ont.; W. G. Kennedy, Montreal, Que.; E. C. Abbott, Toronto, Ont.; R. W. Frank, Toronto, Ont.; A. W. Muir, Fergus, Ont.; L. M. Mabee, Goderich, Ont.; L. G. Campbell, Markdale, Ont.; W. G. Switzer, Sudbury, Ont.; J. Mills, Toronto, Ont.; J. M. Cation, Toronto, Ont.; W. A. Sudworth, Ingersoll, Ont.; R. E. Sparkes, Kingston, Ont.; W. C. Macartney, Ottawa, Ont.; R. J. Munford, Glencoe, Ont.; H. V. Pogue, Lindsay, Ont.; M. G. McElhinney, Ottawa, Ont.; John Oppie McCall,. Buffalo, N.Y.; W. J. Sanders, Brandon, Man.; J. A. Drummond, Petrolia, Ont.; W. H. Woodrow, Brockville, Ont.; V. L. Heath, Woodstock, Ont.; F. D. McGratton, Port Perry, Ont.; W. B. Taylor, St. Thomas, Ont.; F. J. Brown, Port Hope, Ont.; S. W. Bradley, Richmond, Ont.; G. E. Long, Harriston, Ont.; J. M. Wilson, Belleville, Ont.; W. E. Wray, Toronto, Ont.; C. B. Johnson, Winnipeg, Man.; J. C. King, Toronto, Ont.; E. A. Hill, Toronto, Ont.; W. Adams, Whitby, Ont.; N. Smith, Chatham, Ont.; G. C. Bonnycastle, Bowmanville, Ont.; G. K. Mills, Tilbury, Ont.; H. A. Wood, Peterboro', Ont.; F. L. Henry, Oshawa, Ont.; M. A. Fallis, Bobcaygeon, Ont.; H. F. Kinsman, Sarnia, Ont.; J. J. Broderick, Sarnia, Ont.; P. T. Coupland, St. Mary's, Ont.; W. M. McGuire, Waterford, Ont.; W. J. Hill, Alliston, Ont.; G. F. Wright, Madoc, Ont.; D. A. Black, Kingston, Ont.; G. A. Reid, Fergus, Ont.; A. H. Hertell, Berlin, Ont.; H. Irvine, Lindsay, Ont.; E. S. Barker, Stouffville, Ont.; D. C. Smith, Stouffville, Ont.; Frank W. Low, Buffalo, N.Y.; A. E. Rudell, Berlin, Ont.; L. A. Maxwell, Toronto, Ont.; O. H. Zeigler, Toronto, Ont.; D. H. McCoy, Buffalo, N.Y.; A. A. Stewart, Toronto, Ont.; F. C. Furniss, Canal Dover, Ohio; J. A. Hiliard, Berlin, Ont.; W. A. Dalrymple, Toronto, Ont.; W. J. Bruce, Kincardine, Ont.; A. M. Clark, Woodstock, Ont.; W. A. Piper, London, Ont.; F. Pollock, Listowel, Ont.; M. A. Morrison, Peterboro', Ont.; J. W. B. Topp, Bracebridge, Ont.; W. J. Preston, Creemore, Ont.; J. M. Sharpe, Toronto, Ont.; E. P. Smith, London, Ont.; J. B. Johnstone, Whitby, Ont.; C. N. Ross, Hamilton, Ont.; A. Carmichael, Toronto, Ont.; E. W. Falconer, Sarnia, Ont.; E. F. Willard, Toronto, Ont.; A. W. Smith, Simcoe, Ont.; P. St. C. Smith, Toronto, Ont.; G. C. Phillips, Toronto, Ont.; J. A. Cerswell, Toronto, Ont.; S. T. Floyd, Toronto, Ont.; R. N. Berry, Caledonia, Ont.; F. C. H. Briggs, Hamilton, Ont.; J. F.

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